NEW

DISCOVER THE MOST ICONIC PORTABLE CONSOLES EVER MADE

retro GAMER PRESENTS

The HANDHELD GAMING COLLECTION

Digital Edition

THIRD EDITION

NINTENDO • SEGA • ATARI • SONY • NEO GEO & MORE!

THE HANDHELD GAMING COLLECTION

While home consoles and computers were at the apex of videogaming power, handheld machines were the innovators. These plucky portable pioneers empowered us to take our favourite titles on the go; meanwhile, game developers had to deftly think outside the box to adapt their projects to the smaller screens and economically cut-down host hardware. What ensued is a subculture of videogaming that is one of the more unique and fondly remembered areas of the medium's entire history.

In this special edition, we will celebrate the retro handhelds of yore, from the Microvision and Game & Watch to more recent rogues like the Nintendo DS and PSP. We will spotlight some off-the-radar knickknacks, well-established success stories and the occasional unfair failure.

Grab a few packs of AAs because you are about to embark on a vast journey across time into the world of retro handhelds!

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> “It’s a matter of pride that no one created anything better for 12 years”
>
> RJ Mical

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CLASH OF THE HANDHELDS

Not all handhelds are created equal. Some are powerhouses that can only run for minutes, others capture the imaginations of players with more than just technical wizardry. Join us as we raid the archives in search of the greatest (and worst) handhelds ever...

Game Boy

One of the most famous consoles of all time, the Game Boy occupies the same upper echelon as the Sony Walkman and Apple iPod when it comes to brand awareness. Released in 1989, the brick-like portable embraced creator Gunpei Yokoi's philosophy that cheap tech could be harnessed in unique ways. Outgunned right from the beginning by rivals such as the Lynx and Game Gear, Nintendo's handheld was primitive but had what mattered most; namely amazing stamina and a killer library of games. Powered by four AA batteries, the console was capable of providing between 15 to 30 hours of play, eclipsing its competitors when it came to staying power.

Despite its shortcomings, the Game Boy became the dominant force in Nineties gaming, enjoying almost a decade of success thanks to the timely introduction of *Pokémon Red & Blue* in 1995, a title which would kickstart a global phenomenon and sell over 23 million units. Prior to that, the console played host to some amazing pieces of software, including *Super Mario Land 2: 6 Golden Coins*, *The Legend Of Zelda: Link's Awakening*, *Metroid II: The Return of Samus*, and many more besides. Hardware revisions, such as the Game Boy Pocket and Japan-exclusive Game Boy Light, helped to prolong the lifespan of the range, while 1998's Game Boy Color upgrade paved the way for even more commercial success.

BATTERY LIFE
Turns four AAs into about 20 hours of gaming

ERGONOMICS
Hardly a design masterwork, but certainly functional

SUPPORT
Loads of great games, from licensed titles to awesome originals

TECH
The first truly viable portable gaming system

IMPACT
The bedrock of Nintendo's handheld empire

SCREEN
Did the job, but susceptible to ghosting and blurring

PAUL MACHACEK

We speak to the Rare coder behind Beetlejuice, WWF Superstars and the Donkey Kong Land about the Game Boy

What made the Game Boy so special?
In today's smartphone-obsessed world It's very easy to underestimate the impact that Nintendo's Game Boy had in 1989. Before the Game Boy, handheld gaming systems were crude, with basic LED lights or finite character frames prebaked into LCD screens to represent all elements of gameplay. A console was the whole game, nothing could be changed, and the form factor for each often reflected that. Nintendo brought us a portable device which ran for many hours, could swap game carts small enough to drop in your pocket, and you could hook them up for multiplayer.

What was it like to develop for?
Relative to normal consoles of the day, pretty much the same. Apart from swapping from the NES's 6502 to a Zilog Z80 processor, dropping colours and fiddling around with specs, the general layout was that of a NES with character banks, memory bank switching, VRAM access confined to VBlank/HBlank timings, etc. Even the control layout was familiar.

What's your favourite Game Boy title?
It's not possible to answer this without citing *Tetris*. It became apparent that a lot of people were buying Game Boys without having any previous gaming interest. In fact, lots of early customers probably never bought another game. I'm sure it was lost on many that they could take *Tetris* out and put another game in. The Game Boy was revolutionary, but what would it have been if *Tetris* had not existed?

Of the games you developed yourself, which are you most proud of today?
I'd have to say *Donkey Kong Land* as it was the most technically achieved Game Boy title I wrote, though the engine I created that drove it had been born and iterated on through four *Battletoad* games previously. It also sold north of 4 million copies which is never bad validation!

Do you think Nintendo will resurrect the Game Boy name?
Nintendo is a forward-looking company, and one that is very creative. Its successful franchises recur to show off new hardware or gaming elements, but they tend to move on with their main hardware. We're in a world now where everyone has a powerful computer in their pocket, so I think producing a standalone gaming-only device may now be a hard sell.

ESSENTIAL GAME

TETRIS

There have been plenty of great pack-in games over the years but none even comes close to the replayability of Alexey Pajitnov's timeless puzzle game. Even if you owned every Game Boy release, you'd still find yourself putting more time into *Tetris* than any other game – anyone can shift blocks around to clear a few lines but once the speed starts creeping up, it becomes immensely satisfying to see a perilous block-covered screen cleared in a few smart moves. Just never make the mistake of saying you're going to have 'one quick game of *Tetris*'... that never ends as you originally planned.

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Microvision

■ Released in 1979 and predating the Game Boy by a decade, *this* is the grandfather of handheld gaming. Naturally, it's enormous and the display – a mere 16x16 grid of black pixels – proved extremely limiting, but the games came with a built-in workaround of sorts. 'Cartridges' replaced most of the front of the device, changing what the 12 available buttons would do and altering the screen slightly via overlays. Not only that, each cartridge even housed its own CPU, hence why they were so expensive (£16 or so, the equivalent of around £75 today). Build quality was less than ideal and between problems like screen rot and delicate cartridges, it's difficult to find one in good working order.

FIRST HANDHELD
Released: 1979

BATTERY LIFE
A single 9V battery (two for early versions) could last for ages

ERGONOMICS
Chunky and awkward, but it *was* first on the scene…

SUPPORT
Only 12 games were ever released

TECH
A portable device with interchangeable games was huge at the time

IMPACT
A true pioneer in the handheld gaming market

SCREEN
A tiny monochrome 16x16 pixel LCD display

Neo-Geo Pocket

■ Launching a console to compete with the Game Boy may have seemed like a good idea in 1998, when SNK was in a position to capitalise on its 2D game experience with a 16-bit handheld as the arcade market shifted towards 3D. Unfortunately, the Osaka-based manufacturer had timed its decision poorly and the Neo-Geo Pocket ended up hitting the market a week after the Game Boy Color. After five months and ten game releases, SNK delivered the Neo-Geo Pocket Color to replace it. Despite flopping, the Pocket's good form factor and battery life were both positive traits that carried over to the upgraded machine. Additionally, its small library is compatible with the updated machine.

BATTERY LIFE
Two AAs will last you an astounding amount of time

ERGONOMICS
Slightly boxy, but the clicky stick is great

SUPPORT
Backwards-compatible colour games aside, dire

TECH
A capable device hampered by black-and-white graphics

IMPACT
Barely any, but it did spawn a successor

SCREEN
Reasonable, but it's monochrome and past its time

Game Boy Color

■ Whether smart play on Nintendo's part or fortunate coincidence, most of the focus testing for Game Boy Color had been done by other systems. It was clear that players wanted portable colour games, but not at the expense of bulky form or pitiful battery life. An affordable system that ticks those boxes can still fail without brand recognition, so for its true upgrade to the Game Boy, Nintendo went down the checklist leaving hearty thick ticks along the way. Name and shape were familiar, backward compatibility meant Game Boy owners could enjoy an instant library, colour screen and great battery life: the holy grail for handhelds at the time, achieved. Just another Nintendo success story, then…

BATTERY LIFE
Excellent longevity, largely due to not having a backlight

ERGONOMICS
An improvement over the original grey box, for sure

SUPPORT
Loads of existing games, plus cross-compatible and exclusive titles

TECH
Not hugely impressive but the logical progression for the brand

IMPACT
The days of monochrome were finally over for Nintendo

SCREEN
No backlight, but the quality isn't too bad

PSP

Sony had been rumoured to venture into the handheld market since it first arrived on the gaming scene. So while the reveal of the PSP at E3 2004 didn't come as a surprise, what *did* surprise us was how seriously Sony was taking this debut. Looking more like a high-end multimedia gadget than a traditional games machine, Sony was attempting to reproduce the magic that had given it the lead in the console race – by making handheld gaming 'cool', it was looking to attract players that might have been put off by the design and marketing of most alternatives that had always been aimed at the younger end of the demographic.

To this end, the PSP was indeed developed as a multimedia platform rather than a regular console, its proprietary UMD disc format serving not only as the primary system of software delivery but also for TV shows and movies, with over 650 releases globally for the brand-new format. The system could also run media, such as movies or music, direct from the memory stick, effectively combining the functionality of devices like the iPod and high-end phones with the best portable gaming hardware on the market.

All of this could have been an incredible recipe for success for Sony, only Nintendo had other plans… well, possibly. Whether by design or by pure fluke, the DS would attract the attention of players of all ages, a range of accessible games pulling in younger and older audiences alike while Sony was laser-targeting the young adult market. Nintendo's universal approach worked and its DS was a phenomenon, leaving the PSP – despite being the most successful challenger Nintendo had ever seen – to feel like something of a failure. Which, having shifted over 80 million units, is pretty darn far from the truth. A wonderful handheld with a cracking library, even if it *still* couldn't quite escape from Nintendo's shadow.

BATTERY LIFE
Not terrible, but drained quickly by UMD spin-up and/or high brightness

ERGONOMICS
Looks pretty cool, but the shoulder buttons and analog nub are nasty

SUPPORT
It launched a bespoke media format, Sony must have done something right

TECH
Few who saw it running early could believe their eyes

IMPACT
Arguably the only handheld to ever give Nintendo a good fight

SCREEN
Bright and clear – does the hardware justice

Game Gear

■ Sega's most notable handheld had a far better run than many give it credit for – with over 10 million sold over its seven-year lifespan, it was pretty successful compared to most of the other consoles featured here. There are several possible reasons for it to be overlooked – the Game Boy was dominant on the scene and the Lynx had already beaten Sega's machine to wowing the world by offering a colourful alternative. The software also counted for a lot and while looking back there are many important and fondly remembered titles for Nintendo's system – primarily in the fields of stacking blocks (sorry, *Columns*...) and catching monsters – the same really can't be said of the Game Gear's library. That's not to say there weren't still great games and exclusives, because there were... they were simply, like the handheld itself, not quite as mainstream as the competition.

As with other systems on this list, the Game Gear could be seen to be ahead of its time. In fact, both systems did well enough to prove that there was a market for more advanced handhelds, albeit one that would take an ironic twist. Nintendo followed up its Game Boy with a well-received colour version once its rivals had pulled the plug – a cheaper price point, existing brand and library and generous battery life helping it succeed where its rivals had fallen a few years earlier.

BATTERY LIFE
You'd be lucky to get over three hours out of six AAs...

ERGONOMICS
Chunky and heavy, but not all that uncomfortable

SUPPORT
Sega backed it well, but standout exclusives are quite rare

TECH
Effectively portable Master System tech – not too shabby

IMPACT
Never stepped out of Game Boy's shadow, but highlighted a demand for colour

SCREEN
Pretty good, but also the primary reason for the power thirst

SATELLITE HANDHELDS

■ Sega and Sony believed they could extend the gaming experience beyond the home console, resulting in the Visual Memory Unit and the PocketStation. These devices functioned as memory cards, and you could save minigames onto them from your games. These would often allow you to make progress while you were away from your console. Both were very limited pieces of hardware, and the idea didn't catch on as memory cards would become extinct years later.

ESSENTIAL GAME

GRAND THEFT AUTO: LIBERTY CITY STORIES

■ While *Monster Hunter* may be the bestselling franchise on the system, that's hardly reflective of worldwide sales – Japan accounts for around 90% of PSP *Monster Hunter* sales. In any case, what better example to present for a console boasting that it could do console-standard games on the move than a console-standard game? Sure, it's not exactly the full-fat mind-blowing, detail-packed savage satire of modern culture that the main games deliver but considering the limitations of the hardware, this open-world crime spree is absolutely outstanding. With a few more titles of this scope, scale and stature throughout the PSP's life, it could quite easily have enjoyed far more success than it actually did.

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WonderSwan Color

■ Bandai didn't have a great deal of luck with the WonderSwan, first assuming that a budget monochrome system would still have a chance when the Game Boy had already gone colour, then dropping its own colour version of the WonderSwan mere months before the arrival of the more powerful Game Boy Advance. For all this misfortune, however, Bandai managed to make a relative success of things, with some excellent licensed titles and established brands joining its library to help the system claim nearly a 10% share of the Japanese handheld market at its peak. But in Japan the handheld would stay, sadly – despite discussion of a broader release, it never came to pass.

BATTERY LIFE
20 hours or so from just one AA battery

ERGONOMICS
The curious shape allows for several configurations

SUPPORT
A fair few big names were on board, if not for long

TECH
Surprisingly good, although quickly surpassed

IMPACT
GBA absolutely stole its thunder

SCREEN
Okay on the basic model, really nice on the Crystal variant

N-Gage

■ With the mobile market booming and Nintendo still unshakeable at the time, Nokia decided to bring the two audiences together and the N-Gage was born. And while it *was* successful in uniting phone and gaming enthusiasts, they were primarily united through mockery of this device. The concept was a good one, but the execution left much to be desired – as a games platform, the awkward button layout, irregular screen format and the fact that you have to remove the battery to change game cards were huge turnoffs. Although most of these issues were addressed with the QD revision, reduced functionality made it less attractive as a hybrid device, and the damage had already been done.

BATTERY LIFE
Around three hours for gaming; more on the QD

ERGONOMICS
The worst parts of handset and handheld design, thrust together

SUPPORT
A modest library, but it attracted some big names

TECH
Competent 3D visuals for a non-dedicated device

IMPACT
Ahead of its time, in a way – the smartphone revolution followed

SCREEN
Decent quality, but a portrait screen isn't ideal for gaming

GP32

■ Korean firm Game Park and its follow-up companies produced a number of handhelds along the same lines – powerful devices with minimal support in terms of bespoke games (having *any* of these was what qualified this for inclusion in the first place) but an amazing potential for custom software. In truth, this power was (and is) largely used for emulation, with both the GP32 and the GP2X being ahead of the rest of the pack tech-wise and being relatively easy to fill with homebrew and ROMs that would run excellently. Today, Android tablets and portables still fill this same niche – the GPD XD is a notable example of something that builds on the legacy that Game Park and its stablemates created.

BATTERY LIFE
Two AAs offer 6-10 hours, varying with strain

ERGONOMICS
Ridged triggers are nasty, but sits comfortably in the hands

SUPPORT
Few original games – primarily used for homebrew and emulation

TECH
Extremely powerful for its time, as were its successors

IMPACT
The first in a long line of homebrew-led handhelds

SCREEN
Good clarity; available unlit, frontlit or backlit

ESSENTIAL GAME

PROFESSOR LAYTON AND THE CURIOUS VILLIAGE

■ While perhaps not the *best* game on the system, Level-5's wonderful puzzle-adventure game is a great showcase for the DS as a platform. Combining the lateral thinking of the *Brain Training* games that helped popularise the twin-screen handheld, charming presentation that helps the game appeal to players of all ages and smart use of dual-screen setup to present elaborate brain-teasers without needing to get bogged down in menus, there's a reason that the good professor and his sidekick, Luke, were so busy on DS – the developers found a great formula that was a perfect fit for the platform and the franchise found great success.

MOBILE GAMING

■ For this rundown, we limited inclusions to only those devices that run games on dedicated removable media. One emerging sector of portable gaming this precludes is gaming on mobile devices. Both the Google Play Store and the App Store operate much like the digital marketplaces available on modern consoles, albeit with a shovelware quotient that even the DS would balk at. There are plenty of awesome games out there – you just typically have to wade through lakes of dross and money leeches to find them.

MOST POWERFUL
Up to 2 GHz Quad-core ARM Cortex-A9 MPCore

Vita

■ 'Give customers what they want,' says common sense when it comes to introducing a new product. But with the Vita, Sony went with the somewhat riskier 'give customers what they probably *don't* want' approach, ignoring lessons learned from the PSP's relative failure, despite technical supremacy, to create the most powerful handheld on the market once again. As impressive as it is – the small, beautiful screen allows for almost PS3-quality visuals and functionality is excellent – the rise of the smartphone made this leap in power decreasingly relevant with each passing year, once again allowing Nintendo's weaker, more affordable system to dominate the market.

BATTERY LIFE
Burns bright, but burns out pretty fast

ERGONOMICS
Comfortable and wonderfully designed

SUPPORT
First-party love dried up quick, but indies keep it alive

TECH
Outstanding hardware allows for actual console-quality visuals

IMPACT
It seems highly unlikely Sony will try this a third time...

SCREEN
OLED perfection – the literal centerpiece of the system

Nintendo DS

Abandoning the Game Boy name was always going to be a risk for Nintendo and the company knew it – hence the fact that its new and rather odd-looking, dual-screen handheld was positioned as a 'third pillar' at the time of release in 2004, alongside the GameCube and the refreshed Game Boy Micro handheld, a miniaturised revision of the existing Game Boy Advance. This move indicated a lack of faith in the platform, and the fact that the DS was going up against Sony's PSP caused some industry experts to cast doubt over its prospects, but almost from the beginning, it was clear that Nintendo worked its magic yet again. While technically inferior to Sony's handheld, the DS offered touchscreen control, a genuine innovation for the time. The two screens were also put to good use in games, granting players two perspectives on the action or offering space for inventory screens, maps and menus without having to pause the game. The DS also illustrated Nintendo's understanding of portable play; the clamshell design protected the screens when in transit, meaning that players would be more inclined to carry the unit around with them than owners of the PSP, which felt positively fragile in comparison. The original DS model had all the hallmarks of a design rush job, but the subsequent refresh – the gorgeous DS Lite – took inspiration from Apple's range of desirable tech to present consumers with a machine that looked attractive, even when it was switched off. Touch control broke down barriers when it came to grabbing an audience, and the DS was snapped up by gamers of all ages – even those of advanced years, who were no doubt influenced by the proliferation of brain-training titles for the console. While it's tempting to label the DS as a 'casual' system, there were plenty of solid triple-A titles on the format, including *Castlevania: Dawn Of Sorrow*, *The Legend Of Zelda: Phantom Hourglass*, *Phoenix Wright: Ace Attorney*, *Grand Theft Auto: Chinatown Wars*, *Chrono Trigger* and more besides. Then there were the mainstays of Nintendo's catalogue, such as *Super Mario 64 DS*, *Mario Kart 7* and – naturally – the prerequisite *Pokémon* outings. 2008's DSi hardware refresh would offer twin digital cameras and an online app store, as well as a revised design, larger screens and the ability to insert removable memory cards. With over 154 million units sold worldwide, the DS range ranks as the second-bestselling console of all time – a solid indication of its rightful position as one of the undisputed greats of the portable arena.

BATTERY LIFE
Eight hours or so with the backlight on per charge

ERGONOMICS
Horrible original design, redeemed by the Lite and DSi

SUPPORT
An insane library spanning every genre imaginable

TECH
An affordable precursor to today's tablets and smartphones

IMPACT
Smashed age barriers to open gaming back up to everyone

SCREEN
Clear top screen, touch-capable lower screen – a solid combo

© Getty

Lynx

Developed by the same team as the groundbreaking Commodore Amiga, the Atari Lynx was the world's first colour handheld, being released just a few months after the Game Boy in 1989. Originally named 'The Handy' while in development at Epyx, the Lynx boasted several incredibly advanced features for the time, not just for a handheld but for any system out there. As well as featuring a vast palette of 4,096 colours, the Lynx's graphics chip, called Suzy, could also display many sprites as well as being able to scale and rotate objects – something that could only be found on state-of-the-art arcade hardware at that time. Mikey, the Lynx's sound chip, was no slouch either, being able to play high-quality sound samples across any of its four channels without any burden on the CPU. Add in a blitter chip, 16-bit data bus and the ability to link up to 16 consoles together (which is where the Lynx gets its name) and surely you have a winning package.

However, the Lynx was let down in several key areas that stopped it from being the huge success that it deserved to be. The first was the size, it was far bigger than the Game Boy with the original model being near enough a foot long. The revised model went someway to correct this but it was still bulky in comparison. The Lynx's fully-backlit LCD screen also destroyed batteries with ease, and its five to six hours of play just couldn't compare to the Game Boy with over 20, although it should be noted it was better than the Game Gear in this regard. The biggest downfall of the Lynx, however, was Atari's inability to support the machine as well as was needed with only 72 games being released during its commercial lifetime.

LARGEST HANDHELD
Dimensions: 328 x 172 x 106mm

BATTERY LIFE
Incredibly power-hungry, even more so with rechargeable batteries

ERGONOMICS
Somewhat large, but Lynx II was a marked improvement

SUPPORT
A fairly small library, but some big titles in there

TECH
The first colour portable – that's a pretty big deal

IMPACT
Didn't help Atari much, but proved demand for colour

SCREEN
Fair for the time, but doesn't hold up well today

Supervision

■ For Sega and Atari, the solution to the Game Boy problem was to out-muscle the competition. Watara didn't agree with that approach – it reasoned that the best way to compete with Nintendo was to undercut it on price, and the Supervision was the result of that line of thinking. It was a decent bit of kit, only let down by a screen that was prone to blurring. Of course, the price had to be appealing because the software had zero name value. Third-party developers included Thin Chen Enterprise/Sachen (known for its unlicensed NES games), the UK studio BITS and obscure studios Bon Treasure and GTC. As a result, the system hosted a decent number of clones of popular games before fading away quietly.

BATTERY LIFE
20-odd hours from four AAs, comparable to the Game Boy

ERGONOMICS
Not as awkward to hold as it looks

SUPPORT
Nothing of note, but some decent clones

TECH
Not that bad for such a low-budget device

IMPACT
At least it tried...

SCREEN
Rather blurry, but to be expected for the price

Pokémon Mini

■ There are a few handhelds on display here with small libraries, but this oddity has the most modest of the lot – only ten games exist (several only released in Japan) and all are incredibly simple in order to accommodate the small screen and buttons. Nobody is going to tell you the Pokémon Mini is their favourite console but it just goes to show the dominance of Nintendo at its prime that it was able to create a spin-off handheld system for one of its most popular brands. Pokémaniacs will have enjoyed the little thing as an item of curiosity, but we'd be surprised if some people had even seen one before – it's hardly the most well-known Nintendo handheld of all time, after all.

BATTERY LIFE
One AAA battery goes an unbelievably long way

ERGONOMICS
Surprisingly usable for something so very small

SUPPORT
Ten games total, limited visibility outside of fans

TECH
Not bad at all, considering the size of the thing

IMPACT
Neat for the fans, unknown to everyone else

SCREEN
Simple and tiny, but it got the job done

Nomad

■ Introduced more as an addition to Sega's family of consoles than a successor to the Game Gear, the Nomad is a curious beast. On the one hand, it has power on its side – based on the Mega Jet (Sega's portable Mega Drive for in-flight use in Japan), it's a portable Mega Drive. But that came at a price, namely a chronic thirst for fresh batteries, a small screen that can make text difficult to read (and that doesn't cope well at all with fast scrolling) and a limited, US-only production run. An extremely late release (it actually launched after the PlayStation) and a high price point didn't help its cause much at the time, but it remains, as it was then, a desirable and undeniably cool piece of kit.

BATTERY LIFE
Two hours out of six AA batteries... ouch.

ERGONOMICS
Bulky, heavy and awkward to hold

SUPPORT
No original titles, but full Mega Drive game support

TECH
Portable Genesis tech was certainly an impressive feat

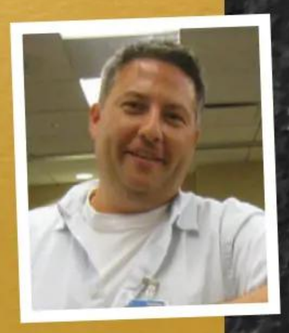
IMPACT
Limited and late US-only release, and hardly practical

SCREEN
Bright and colourful but blurs heavily with quick movement

SMALLEST HANDHELD
Dimensions: 74 x 58 x 23mm

D. SCOTT WILLIAMSON

We speak to the genius behind three of the Lynx's best arcade ports in RoadBlasters, Toki and S.T.U.N. Runner



What makes the Lynx so special?
It was way ahead of its time – portable, colour, networkable, left and right handed. It had fast multiply and divide hardware, impressive multichannel sounds, copy-protected cartridges and, probably most impressive to me, were the innovations in graphics. True bitmapped graphics with hardware collision detection, the ability to draw compressed sprites with skew and scale which can be combined to do rotations and lots of other tricks. It was possible to render triangles and real-3D models on the platform for games like *Hard Drivin'* and *Steel Talons*. And as if the hardware wasn't enough, it was the first system I used that had complete documentation and a full SDK.

What is the Lynx hardware like to work with?
It was a dream! It was great to program for and when I had a crazy idea of how to make the hardware do something new, it usually yielded the results I hoped for.

Why do you think the Lynx should be remembered?
I think every game platform should be remembered for its games. Nothing else matters if it doesn't entertain people, and by that standard I think the Lynx was an exceptional platform. For me personally, there was more to the Lynx, I think the Lynx stands out in videogame history for being one of the most forward-thinking, ahead-of-its-time platforms. More advanced platforms came later, but I can't think of a single one that contained as many leaps and innovations in so many areas, and in a way that was so well done. Working on it really was like working on videogames for the future.

ESSENTIAL GAME

S.T.U.N. RUNNER

Although the Game Boy and Game Gear had a host of impressive arcade conversions in their respective libraries, Atari's Lynx thrived on them. Access to the Atari vaults ensured Atari Games had access to a whole host of gems and many of them made the leap over to Atari's powerful console. While the likes of *Klax*, *Rampage*, *Toki*, *Robotron: 2084* and *Rampart* were all highly impressive (and hold up well today) it's perhaps *S.T.U.N. Runner* that summed up everything that was great about Atari's machine. It delivered cutting-edge technology, intense gameplay and virtually every aspect of the original arcade game. It also put all the home ports to shame, too.

3DS

Following its successes with the Wii's motion control and the DS's twin screens and touch control, it feels like Nintendo got a tad carried away with its gimmicks. The original 3DS model and its early games could be difficult to play, but later games and hardware revisions would refine the effect. Despite the 3D functionality reducing its technical capacity, the combination of the brand and Nintendo's franchises would be enough to carry it, with the likes of *Mario*, *Pokémon* and *Zelda* all well represented. Well, that and a deserter from the PSP camp – *Monster Hunter*, the bestselling handheld series in Japan, journeyed across to Nintendo's handheld shortly after its release, injecting a level of confidence into the system.

BATTERY LIFE
Poor, but improves when you have the 3D turned off

ERGONOMICS
Just like the original DS – clunky at launch but vastly improved later

SUPPORT
The leading handheld of its age, with a great library

TECH
Glasses-free 3D was neat, although tech is still behind its peers

IMPACT
Could this be the end of the road for traditional handhelds?

SCREEN
With the right game, setting and hardware revision, the 3D effect is ace

© Getty

Gizmondo

■ One of gaming's greatest disasters, the Gizmondo was sent out to die. Having somehow found a name even worse than the originally-planned Gametrac, its creators went about showcasing how *not* to release and support a system – a star-studded launch party and premium London retail outlet perhaps weren't the savviest investments for a device with only a handful of games, with the limited production run making it impossible for the ill-fated handheld to ever turn a profit. The company behind the system declared bankruptcy less than a year after the European launch of the device, bringing the tale of gaming's least-successful handheld to the conclusion everybody saw coming.

BATTERY LIFE
Around four hours of gaming from a full charge

ERGONOMICS
Ugly and overcomplicated, but not all that uncomfortable to hold

SUPPORT
Only 14 games released, discontinued in less than a year

TECH
Modest hardware, especially next to the PSP

IMPACT
Awful sales, zero legacy

SCREEN
Adequate but not great, especially for media playback

Game.com

■ When Tiger Electronics left LCD games for handheld console gaming, we never thought the company would mess things up as badly as it did. The external promise was enticing – apart from having a touchscreen interface and various built-in functions, the machine could connect to the internet. What's more, Tiger's licensing work allowed it to draw on a dream of top franchises, including *Sonic The Hedgehog*, *Mortal Kombat*, *Duke Nukem* and *Resident Evil*. The reality was less exciting. The internet cartridge required a fixed modem, the touchscreen was fiddly and was rarely used in games, and the screen was so blurry as to make all but the slowest of games unplayable.

BATTERY LIFE
Four to six hours from four AAs, but why?

ERGONOMICS
A big ol' slab of disappointment

SUPPORT
A modest library, and almost universally awful

TECH
Some neat ideas, but wrecked by dire execution

IMPACT
At least it showed the world how *not* to make a handheld...

SCREEN
A blurry monochrome mess

TurboExpress

■ While the Game Boy was offering an affordable low-end hardware option, NEC came stomping into the playground with the opposite – a full-colour handheld that cost three times as much. From a technical standpoint, this thing was crazy – at a time when portable games were either monochrome or much simpler than their home counterparts, to have console-standard visuals and gameplay in your pocket was an incredible feeling. Sadly, it wasn't one that many would have had the privilege of knowing while growing up – it never had the same visibility as its competitors (hardly surprising, given the price) and ended up coming in fourth place behind Game Boy, Game Gear and Lynx.

BATTERY LIFE
Six AA batteries allow for up to three hours of play

ERGONOMICS
Quite large and heavy, but that was the price of power

SUPPORT
Full TurboGrafx-16 HuCard support, but little bespoke

TECH
All the power of a PC Engine... in your pocket

IMPACT
Carved itself a small niche as a high-end option

SCREEN
Generally pretty good, but small text can be an issue

STANDALONE GAMES/DEVICES

■ Things like the Game & Watch and one-off LCD games have coexisted with handhelds for a long time. Some of the Nintendo ones are classics, simple games that demand constant replay to master, while others are appalling. Cost plays a huge part in the differences between these units and consoles but there are few examples where we can say we'd rather take the cheap device than save up and invest more interesting catalogue...

ESSENTIAL GAME

POKÉMON: FIRE RED & LEAF GREEN

■ If you're starting out your *Pokémon* journey today, you might be tempted to pick up one of the original monochrome Game Boy games – but that would be a big mistake. The remade versions for the Game Boy Advance are superior experiences, thanks to improved creature balance and additional features, as well as the obvious graphical upgrade. You might not find many players to trade with these days, but it doesn't matter too much – you can preserve your GBA Pokémon by transferring them to the later Nintendo DS games, and onwards to the 3DS games and beyond, meaning that anything you catch still has value.

WonderSwan

■ Launching a black-and-white handheld five months after the Game Boy Color launched may seem foolish, however, a low price and some strong licensed software kept Gunpei Yokoi's last piece of hardware in the running for over a year and a half until its successor emerged. While the WonderSwan never carved out more than a small share of the market, it did have some excellent qualities. 20 hours of battery life off a single battery was superb, and the ability to run games in vertical orientation was cool. With over 100 titles on offer, including backwards-compatible WonderSwan Color games, it was well supported. Unfortunately, the tech was dated on arrival and the screen was highly prone to blurring.

BATTERY LIFE
20 hours off a single battery? That's pretty incredible

ERGONOMICS
Nice to hold, but the rear battery bulge is awkward

SUPPORT
Lots of games, but the successor arrived in under two years

TECH
Nice hardware, but black-and-white visuals in 1999?

IMPACT
Established itself as a credible Game Boy alternative, but only in Japan

SCREEN
Widescreen is nice, but there's blurring

Neo-Geo Pocket Color

■ SNK couldn't seem to catch a break with its own console. Replacing the black-and-white version mere months into its life, this colour variant is, like SNK's other systems, something of a cult favourite. That's probably because pretty much every major SNK franchise is represented here, and rather well – third-party support wasn't awful either, with Sonic and Pac-Man showing up alongside the first-party titles. With its great battery life and satisfying clicky control stick, it's easy to see how devotees fell in love with this, and hard to see how the world didn't, aside from Nintendo's obvious chokehold on the market.

BATTERY LIFE
Makes wonderfully frugal use of two AAs

ERGONOMICS
Looks boxy, but smart rear design means it sits nicely in hands

SUPPORT
First-party games everywhere, but not a great deal else

TECH
A lovely piece of kit, although quickly left behind

IMPACT
Didn't leave much of a mark on the bigger picture

SCREEN
Unlit, sure, but it's crisp and clean all the same

Game Boy Advance

It's said that the flame that burns twice as bright burns half as long, and the GBA may be proof of that. The DS arrived just three years and eight months after the GBA, making it Nintendo's shortest-lived handheld – but with three major models and a library of hundreds of games, it's easy to forget that fact.

It's also easy to forget just how much of a shock the machine itself was when it was unveiled. For the first time in over a decade, Nintendo had altered the form factor of its handheld, with the controls placed on either side of the screen, rather than below it. And while the idea of a handheld without a rechargeable battery or an illuminated screen seems ludicrous today, the GBA lacked both in its initial form. The SP model added both features in 2003, as well as a clamshell design. The final revision, the minuscule Game Boy Micro, kept these features but dropped backwards compatibility with older Game Boy cartridges.

But if Nintendo never quite found the perfect form for the GBA, it didn't matter – the 32-bit tech under the hood was capable of delivering fantastic games, and developers capitalised on that. Portable versions of SNES hits such as *Super Mario World* and *Donkey Kong Country* gave nostalgic gamers plenty to love, alongside a new generation of classics like *The Legend Of Zelda: The Minish Cap*, *Metroid Fusion* and *Wario Ware Inc*. Third-party developers were on fire, too – the likes of *Astro Boy*, *Golden Sun* and *Ninja Cop* provided original properties to love. A line-up like that is going to deliver fun, no matter which device you prefer to use.

BATTERY LIFE
Not super long, but rechargeable models added value

ERGONOMICS
No model was perfect, but you've got options

SUPPORT
Hundreds of games over five years

TECH
A big upgrade over its predecessor and competitors

IMPACT
Inspired a brief, but satisfying, 2D renaissance

SCREEN
Anywhere between poor and incredible, depending on the model

JIM BAGLEY

The veteran coder explains the technicalities of working on the Game Boy Advance

Many described the GBA as a portable SNES. Is it a fair assumption to make?
Yes and no. It is a fair assumption to say that the GBA was like a SNES in the video modes it had, but it was way more [than that] as its processor was more capable, it had multiple screen map layers and alpha transparency as well as many hardware sprites.

What was the GBA like from a technical point of view?
The GBA was awesome, I loved programming on it. It was also getting towards the tail end of writing routines in assembler to get the all important performance boost, which, to me, is the fun part, as you're having to optimise your tight render routines to get the most out of things. This was before the bigger and more powerful processors came into play, with the extra 3D hardware. Not that it's the end of being able to add assembler, but it's not needed as much lately, and, from a technical point of view, it had many 2D graphic modes, like the SNES, but with the extra processing power you could draw bigger sprites and move a lot more around on-screen than you could with a SNES.

Which model of GBA is your favourite and why?
The original GBA was my favourite model, because it felt better in your hands, and it was the original one. Okay, it wasn't backlit or anything, but it was the first GBA and it was a huge improvement over the Game Boy Color. You now had something that could perform like a SNES in your hand, it even had a bitmap mode, and was fast enough to do software polygons.

© Getty

ONE VISION

A MICROVISION RETROSPECTIVE

Often billed as the first true handheld game console, the Microvision is an evolutionary step in handheld electronic games, those distant cousins to videogames. Marty Goldberg reveals the history behind this pioneering product

© Evan-Amos

Electronic gaming in the palm of your hand has been around almost as long as videogames. While the latter required a TV, the former arose in the mid-Seventies as a way to use up excess calculator parts gathering dust in a market recently taken over by Japan. The class of games was created in the US by Mattel after exec Mike Katz saw a new opportunity for those stagnant parts by repurposing them to play games on. Assigning some engineers to the project, they came up with a novel way of using microcontrollers (a small single-chip computer) with on-board game code to drive an LED display and the Mattel Electronics group was born. Comprising nothing more than glowing LED segments housed in patterned plastic, they were a far cry from actual videogames, but these small electronic games caught the imagination of a generation of kids.

As other companies began to enter the market, a funny thing had happened by 1978: in the US, sales of electronic games actually outsold home videogames. In fact, while the magazine *Newsweek* was celebrating the high-tech toys and games on its cover that Christmas, home videogame sales were hit hard.

Additionally, a display shift had been brewing in the calculator market as LED-based calculators gave way to both vacuum fluorescent display (VFD) technologies – with crisp, glowing elements – and liquid crystal displays (LCD) offering lower power consumption.

> "[The chemicals'] speed determined how many lines you could have in the display"
>
> Jay Smith

The stage was further set by the appearance of the handheld Merlin that year. Designed by Bob Doyle, this handheld electronic game was released by Parker Bros and went head-to-head with Milton Bradley's tabletop format Simon (designed by the legendary Ralph Baer) that Christmas season. Merlin's big advantage? It could play more than one game – switchable to several different built-in games, much like the dedicated videogame consoles of the mid-Seventies.

It was during this backdrop of portable electronic dominance that the next generation of these handheld games was being designed at a small firm in Santa Monica, CA called Western Technologies. Jay Smith had founded Western Technologies on 19 September 1978 as an engineering firm to design electronic games and toys for the major toy companies of the era. A 'toy think tank' of sorts. Jay had come up with the concept of what became the Microvision thanks to a small side-business of the company. "We were creating the chemicals that went into an LCD display and were selling them to Hughes Aircraft, a major manufacturer of LCD displays at the time," says Jay.

At the time, LCD displays were limited to a three-row display. As Jay illuminates, "Depending on the make-up of the chemicals, their speed determined how many lines you could have in the display. In

» *Sea Duel* is essentially a one-player version of Milton Bradley's popular board game *Battleship*. It's certainly worth seeking out.

> We created a display system that only governed the rows being addressed
>
> Jay Smith

general, three rows was about it." Realising that three rows of dots were not enough to do a meaningful game display, he came up with a novel idea akin to how today's 3D graphics engines 'clip' graphic elements not being used in order to save processing speed. "We realised the graphic displays at the time counted every pixel every minute, whereas in a game display, we would only use about 20% of the pixels at a time. Why worry about rows not being used? So we created a display system that only governed the rows being addressed." In this method, pixel rows that are on most of the time and static require the least amount of attention. Rows with semi-moving objects require a little more, and rows with regularly moving objects (a shot, a ball etc) require the most. This advancement allowed a formerly unheard of 16 rows of pixels and in turn created an LCD display that was much more viable for playing games on.

Having to come up with a custom LCD driver chip, the thought became that if they were advancing the technology this much display-wise they might as well make it a programmable system that could swap out cartridges. The problem was, once again, the technology (and cost) wasn't there yet to support a full microprocessor with swappable game ROMs in a handheld format.

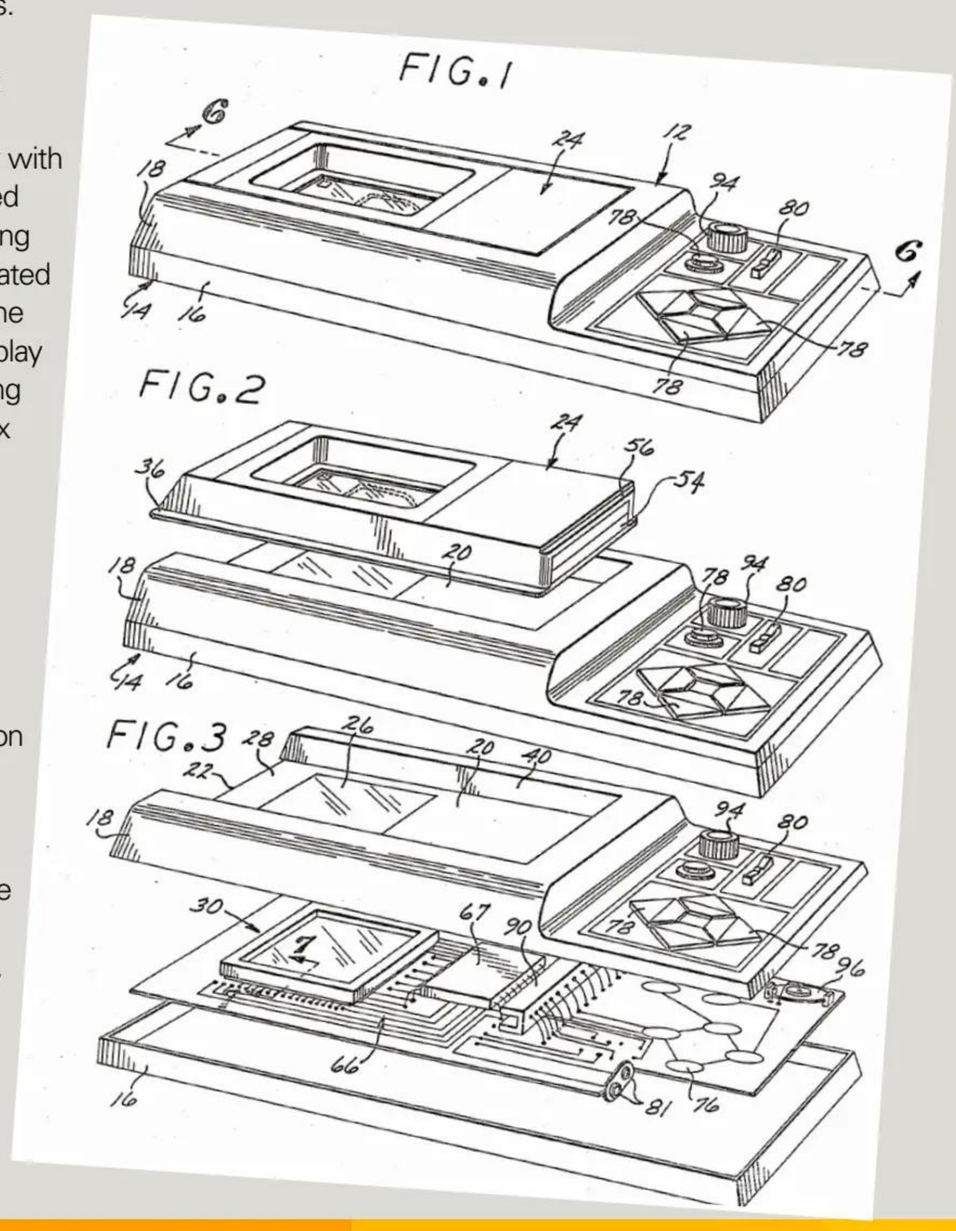
Most LED handheld games of the time (and electronic toys in general) used what are called microcontrollers. A microcontroller is a chip that is essentially a full 'computer' on a single chip. That means the processor, RAM, input/output and other related technologies that are all separate in a traditional computer are combined in a single chip. Now, that chip and its resources were nowhere near as powerful and plentiful as a regular microprocessor-driven system at the time, but they weren't intended to be. Microcontrollers were created to be used in small, compact devices. Devices such as… you guessed it, calculators. That's one of the reasons why Mattel's first handheld electronic game (*Auto Race*) uses a microcontroller and the technology became a staple of the handheld electronic games industry and the electronic toy industry as well.

The actual software that was to run on the microcontroller was usually packaged within the microcontroller IC itself in ROM format, further adding to the compactness of the device. However, just like all the other resources in the microcontroller, this meant you had a limited amount of ROM space to work with. The programmer of Mattel's *Auto Race*, Mark Lesser, had to fit the game (logic, scoring etc) into 512 bytes of code. A feat that makes the 2K available to Atari 2600 game developers of the time seem spacious.

Jay Smith's solution was to leverage microcontrollers in a way not unlike dedicated videogame console manufacturers had looked at that year with their single-chip '*Pong*-on-a-chip' based systems: create the illusion of switching out games by switching out the dedicated systems themselves. In that format, the system is really just the controller and display mechanism and the 'guts' are all on the part being swapped out. Companies in Europe like Hanimex had started releasing SD 050-based consoles in 1977 that did just that, and Atari had its Game Brain it showed at the summer 1978 CES but chose not to release. In the case of Jay Smith's proposed device, the handheld unit would only contain the electronics for the LCD and controls. The microcontroller that contained the system's main circuitry and game itself would be located on a portion of the unit that would swap in and out, plugging into the other circuitry when docked.

Building a prototype, Jay Smith shopped it around and Milton Bradley wound up biting at the opportunity. Milton Bradley had started in 1860 as a board game company located in Springfield, Massachusetts. By the early Seventies, it had released board and novelty game titles that had become staples of many a person's youth, such as Mouse Trap, Operation, Battleship and Connect Four. Following Mattel's lead, it tentatively stepped into the electronic toy and game market in 1977 with the tabletop Comp IV (released in the UK as Logic 5). A number-sequencing game that was more an educational toy in the same class as Texas Instruments' Little Professor, it comprised a series of LEDs housed in a case meant to look like a child's version of a computer. It was joined that year by an updated electronic version of its classic board game Battleship. In 1978 Milton Bradley followed up with a new electronic board game called Laser Attack, a futuristic *Star Wars*-influenced electronic toy space fighter called Star Bird, and the aforementioned Simon. It was Simon, though, that Milton Bradley knew it had a hit with, and so it pulled out all the stops for its introduction. The game of glowing coloured lights and musical tones made its debut at New York's own location for dancing lights and musical sensations, the iconic Studio 54. When Jay approached Milton Bradley with the concept for his handheld electronic game with switchable games, the firm knew it had an appropriate follow-up to Simon.

The designers of the system – Jay Smith, Gerald Karr and Lawrence Jones – were awarded US patent number 4359222 for the Microvision. Entitled 'Hand-held electronic game playing device with replaceable cartridges', it was originally filed on 30 October 1978.



Described as a "compact hand-holdable electrical toy game assembly", the drawings show the initial proposed format for the Microvision which included both a primordial version of a 'd-pad' thumb controller and a spinner for playing paddle-style games. An alternate version shown in the same filing is a little closer to what became the actual Microvision, including a 12-button keypad, spinner and removable faceplate.

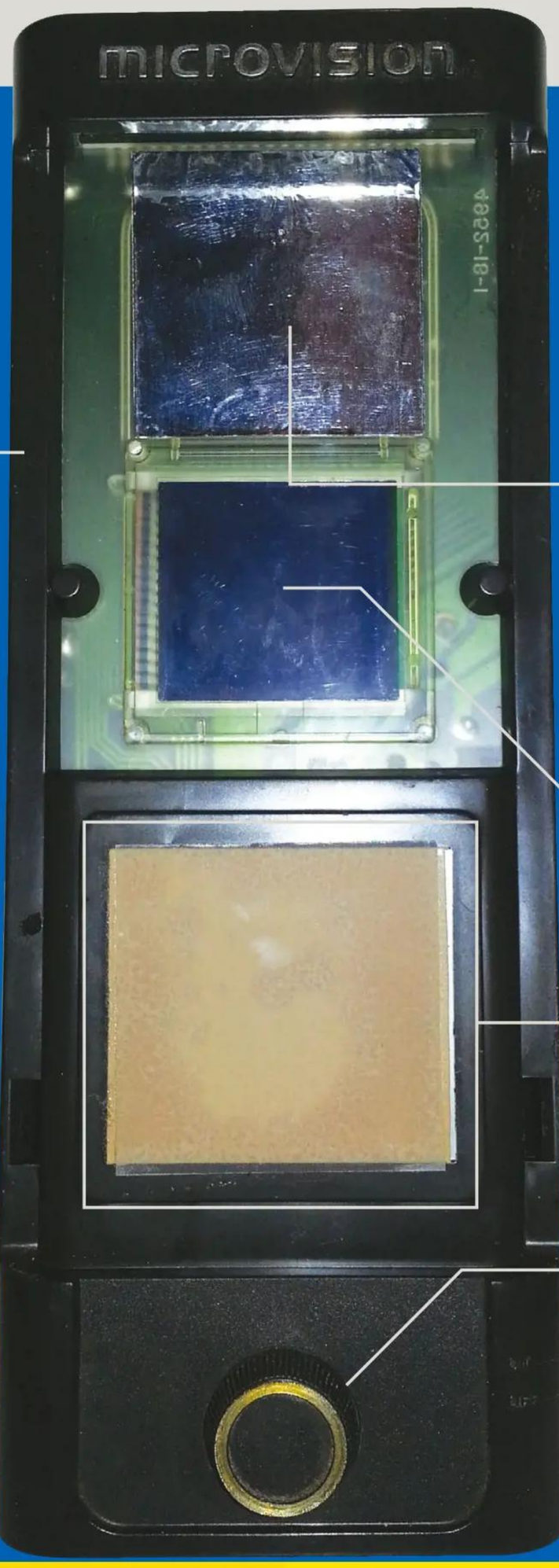
The development, from concept to full product, led to some interesting design work and changes from the initial concept. At first glance, the Microvision looks like an oblong version of the typical handheld electronic game of the time. This certainly wasn't needed for the electronics, as they take up about the same space (if not less) as the other games on the market. According to Jay Smith, the primary reason for all the extra space fell on Milton Bradley. Its reasoning being that the projected price would dictate the need for a larger size, as if the consumer would not understand they were paying for higher technology.

The main unit itself houses the LCD, its special controller chip, the controls and the connection to the system bus that works similarly to a cartridge slot. It's used for nothing more than I/O and power (Tiger's R-Zone console in the Nineties is similar in construct, but with an LCD contained on the removable portion). The most interesting addition, though, which shows a lot of insight into its replayability potential, is the control pad. Instead of a defined keypad with raised buttons (as shown in the concept drawings) it features a flattened pad, allowing it to be defined as needed by the faceplate. Combined with the spinner control, it provides custom control options on a per-game basis. A feature not matched until touch-based games proliferated on smartphones and tablets.

The microcontroller initially chosen by Jay and company was the Intel 8021, an 8-bit microcontroller in the same family as the 8048 processor used in Magnavox's Odyssey 2 console (Philips Videopac series) and introduced in 1976. With 64 bytes of RAM and able to address a game up to 1K in size (the typical game size up to that point had been about half that), it held enough resources to get the job done. Interestingly though, the 8021 has a higher power requirement than the typical microcontroller used in these devices and, combined with the requirements of the LCD, it made the Microvision require two 9V batteries (which added to the size of the unit as well). The 8021 was replaced with the Texas Instruments TMS1100 not long into the system's lifetime, however, thanks to some ordering issues for the Intel chip. A 4-bit microcontroller that's part of the TMS1000 series introduced in 1974, the 1100 has less RAM and processing power but can address up to 2K in ROM space. The other plus it brought was the lower power requirement, allowing the Microvision to need only one 9V battery now. Milton Bradley responded to ▶

INSIDE THE MICROVISION

Thanks to its rarity, it's not often you get to see the innards of this remarkable handheld



CASE

■ Here's what's holding the Microvision together. It's worth noting that the bottom half of each front faceplate is typically different for each game. *Connect 4*, for example, has six control points while *Block Buster* only uses four.

CONTRAST KNOB

■ A feature rarely seen on even later LCD-based handhelds, this enables the Microvision owner to adjust the contrast of the display – important considering it's not backlit.

BATTERY STORAGE

■ The original Microvision needed 9V batteries. Changes during the production run lowered power requirements. The second slot became extra battery 'storage'.

LCD CONTROLLER

■ The custom controller chip for driving the then-groundbreaking LCD display. Commonly covered with a wound copper-backed foil sticker to protect from static discharge.

CARTRIDGE SLOT

■ This is where you can attach new cartridges for your handheld. In total, just 12 games were created for the machine, making it an unique challenge for collectors.

LCD

■ Custom 16x16 LCD display designed by Jay Smith and his team. Unfortunately, because of early manufacturing limitations, it's prone to breakdown and a condition known as screen rot.

TOUCHPAD (12 KEY)

■ 12-key touchpad, which has its areas defined by the faceplate. Technically similar to number pads on console controllers like Intellivision and ColecoVision.

PADDLE

■ The Microvision's mounted spinner control. Its functions differ on a per-game basis and include everything from a traditional paddle control to adjusting range settings.

» [Above] The TMS1000 microcontroller in all its glory.

» [Right] *Block Buster* is Milton Bradley's take on the arcade hit *Breakout*.

the dropping of one battery by leaving in the extra battery port instead of redoing the system moulds, simply unwiring it. The old battery port was now redubbed as "extra battery storage". They couldn't escape the need to recode the software for the games, however, for the more primitive TMS1100.

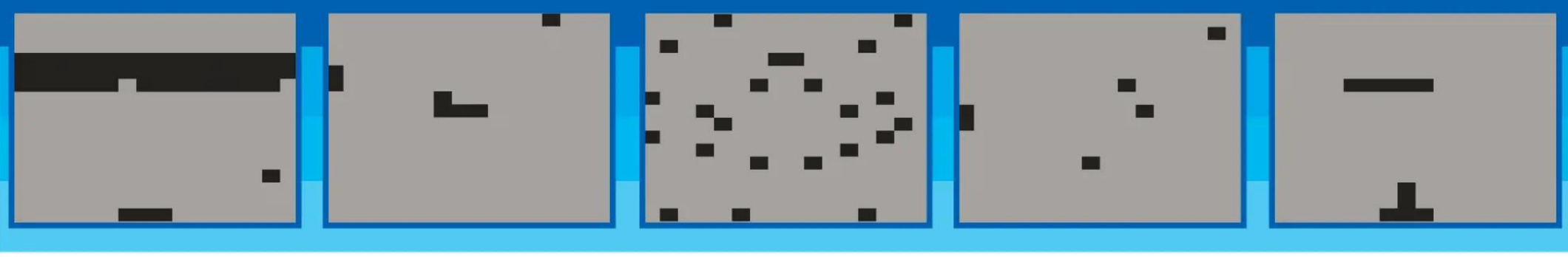
The microcontroller, as mentioned, is housed in a removable faceplate. Each faceplate is designed to give a custom experience to the game, not unlike the elements of an arcade game. The game's name is provided in a unique and colourful 'marquee' and the screen bezel contains colourful surrounding graphics and sometimes overlaid markings relevant to the gameplay. Finally there's the control area. Using a combination of moulded plastic to 'expose' the relevant spots on the touch pad and coloured text or graphics that describe the button's function, the control customisation available for each game was unparalleled. On the reverse side of the panel is what looks like a 'dust protector' similar to the Atari 2600 protectors; however, that's not its function. While the problem of static discharge on the exposed contacts was solved in videogame consoles, it was a major issue for the Microvision. One wrong touch and 'poof' it would go, wiping out the game and microcontroller. The cover that flips off to expose the contact was meant to protect it from this mishap.

The Microvision was released in November 1979 for around $40 (about $165 today) along with another high-tech toy offering by Milton Bradley, the programmable Big Trak. It came with the *Breakout* clone *Block Buster* along with three available launch titles: *Bowling*, *Connect Four* (a version of Milton Bradley's popular 1974 board game) and *Pinball*.

The Microvision was of course not the only next-generation electronic game to hit the market in 1979 with an advanced display, as toy manufacturer MEGO (famous maker of superhero toy dolls and dolls based on movies like *Planet Of The Apes*) came out with the Mini-Vid series of tabletop two-player games. Featuring a 16x20 VFD display, it came in versions for four different games: *Break Free*, *Dodge City Gunfight*, *Sea Battle*, and *Spacewar*. In fact, 1979 turned out to be the year of the two-player handheld electronic game: Coleco had the 'Head to Head' series of tabletop sports games, while Pulsonic released its classic two-player Baseball game.

While the ability for two players (one on each end of the unit) to play head to head was certainly an advantage, you still had to buy four separate units. Though Microvision was only one-player, the

ESSENTIAL GAMES If you do find a working machine, play these…



BLOCK BUSTER

■ Use the console's built-in paddle to hit the ball and knock away bricks. What else can really be said of this pedestrian *Breakout* clone? What really makes it a notch above the rest isn't the version of the game itself, but the fact you can use an actual spinner to control the on-screen paddle. Digital thumb pads and analogue joysticks found on regular handheld videogame consoles two decades later just don't cut it for accurate control of the paddle. You need a spinner for the proper timing and feedback needed to enjoy paddle games, and the Microvision has it!

SEA DUEL

■ A one-player version of Milton Bradley's *Battleship* board game. In fact, many of the games on the Microvision were versions of MB board games and toys (much to the dismay of Jay Smith who wanted to expand beyond those offerings). Here, a destroyer is pitted against a submarine with an emphasis on tactics. Designed for two players, both opponents separately 'program' their movements and fire shots ahead of time, then watch the game execute them. It plays similarly to some of the American Football slideshow games of the Seventies.

COSMIC HUNTER

■ In this space game, you're hunting alien creatures while avoiding barriers, hidden traps and being captured by said aliens. You only get five hunters and once they're all captured, your game is over. By the same token, you get to capture as many aliens as your hunting heart desires. A fun little game combining shooter and strategy mechanics. *Cosmic Hunter* is notable for providing the earliest instance of a d-pad (directional pad) in a game, a control Gunpei Yokoi used to great effect on Nintendo's Game & Watch handhelds starting in 1982.

ALIEN RAIDERS

■ A *Space Invaders* clone, it's just different enough to avoid any legal issues. Horizontally orientated, 'aliens' race across the screen from right to left and try to reach your side of the screen. They don't fire, they just try to get at you before you can shoot them. With gameplay that's more of a cross between *Space Invaders* and Midway's then-recently released arcade game *Space Zap*, your only recourse is to fire at them from one of three preordained spots with a variable-length laser beam (whose length is decided by the system's spinner).

STAR TREK: PHASER STRIKE

■ The only licensed game on the Microvision, it was developed as a tie-in to the film *Star Trek: The Motion Picture*. By the time of its European release, however, the *Star Trek* licence was dropped and the game was renamed *Phaser Strike*. The premise is what you'd expect for a *Star Trek* game: shoot Klingons. It plays a lot like Atari's *Missile Command* meets Midway's *Sea Wolf*. As the Klingons fly horizontally across the screen, you get to shoot at them from any one of three phaser banks.

advantage of being able to play different games on the unit outweighed that fact for parents. Likewise, the appearance of the Microvision disproved the statement by Dick Dalessio, Parker Brothers' director of product planning, who revealed in the December 1979 issue of *Popular Science* that: "The electronics are basically the same as last year, but the programming makes them entirely new." Although that was certainly true in relation to the expected updates to already popular Football and Basketball games by Mattel and Coleco, and the onslaught of Simon competitors.

The Microvision was a big success that first year, and according to some reports earned $8 million in revenue. Over the next two years the library expanded to include *Mindbuster*, *Baseball*, *Seal Duel*, *Alien Raiders*, *Cosmic Hunters* and the licensed *Star Trek: Phaser Strike*. However, beyond that initial year, the sales continued to steadily decline. Thanks to the runaway success of Atari's release of *Space Invaders* for its VCS console, the problem was that actual videogame consoles were fast becoming king again in 1980. The entire handheld electronic game market started dropping drastically and was

> "A compact hand-holdable electrical toy game assembly"
>
> The Microvision's US patent description

relegated to a cheap portable gaming accessory for much of the Eighties until Nintendo released the first actual handheld console in 1989, its monochrome LCD-driven Game Boy (followed shortly after by Atari Corp's full-colour LCD Lynx handheld console). Milton Bradley stopped manufacturing the Microvision in the US in 1981 and dropped it in Europe in 1982.

Jay Smith had actually proposed two updates to the Microvision – one with a larger display and another with a colour LCD – but Milton Bradley declined, feeling the format had run its course. Not one to rest on his laurels, Jay Smith did move on to create an LCD game watch for manufacturer GCE and then the equally innovative vector gaming console the Vectrex. Milton Bradley wound up picking up the latter for European distribution, and Smith even looked at doing a portable version of the Vectrex in the late Eighties that never panned out.

Microvisions are actually extremely collectable items today, not as much for their uniqueness but for the rarity of working models. Because of the 'primitive' manufacturing methods behind the groundbreaking LCD display, they are highly susceptible to temperature changes. The chemicals in the display are also prone to leakage, a condition known as 'screen rot' that eventually destroys the display.

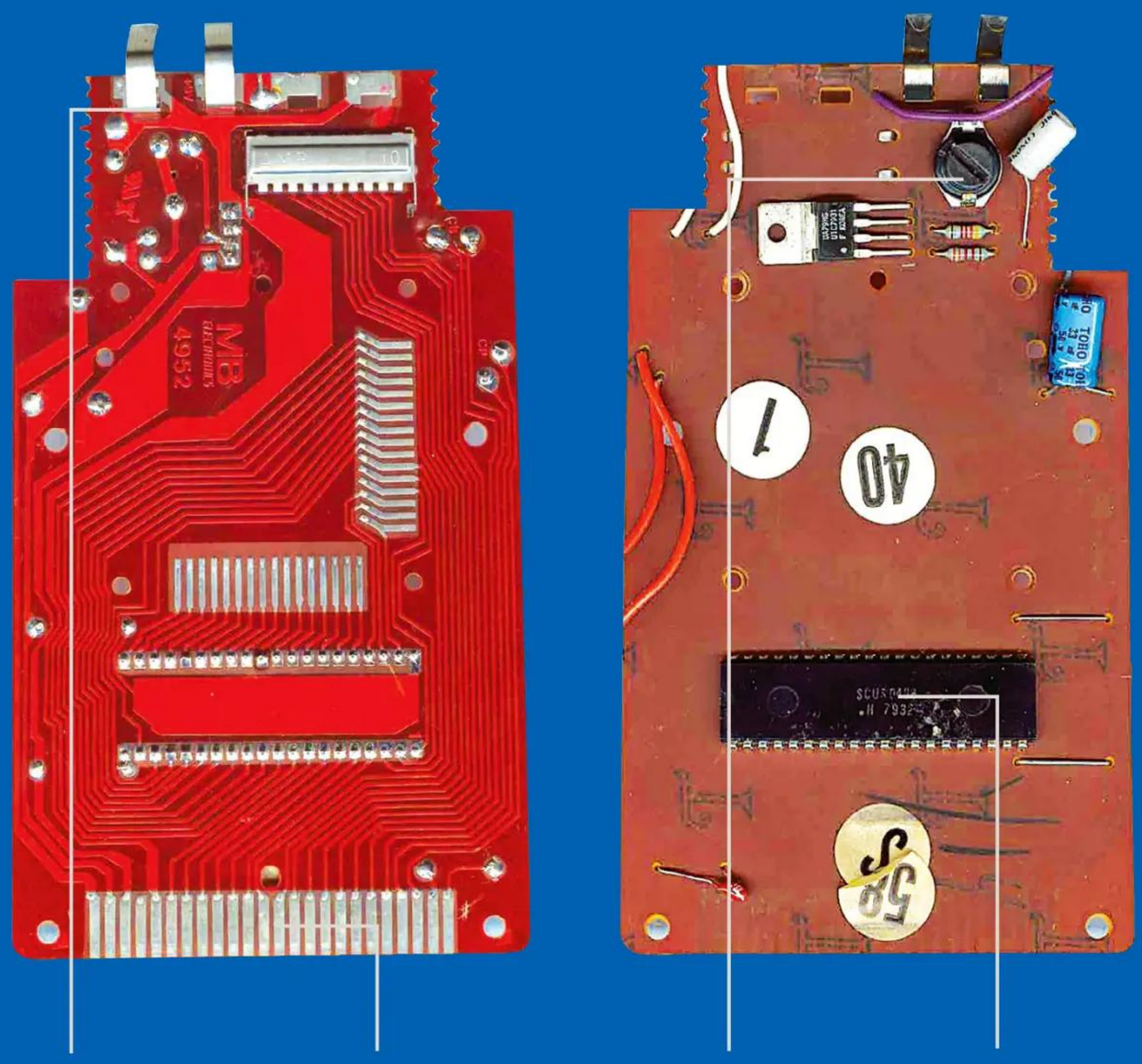
Milton Bradley released a European version as well (which came with its own vinyl slip-on cover), along with European versions of the US games plus one exclusive: *Super Block Buster*. The Microvision might not have been the huge enduring success that Milton Bradley was hoping for, but it remains an important footnote in gaming's rich history. ✱

Special Thanks to Scott Schreiber, Benj Edwards and Dan Boris

PROGRAMMABLE ELECTRONIC GAME SYSTEM
microvision
INCLUDES THE FAST ACTION GAME CARTRIDGE OF BLOCK BUSTER
Ages 8-Adult
for 1 or more players
BLOCK BUSTER
BALLS
SPEED
PADDLE
GO
Easy-to-insert, interchangeable game cartridges snap into the console. To change games, simply remove one cartridge and drop in another.
A new concept in electronic game systems – a hand-held console with interchangeable cartridges.
A wide variety of game cartridges available, see back.
Two 9-volt batteries required, not included.

INSIDE THE FACEPLATE/ CARTRIDGE

Each faceplate houses the main electronics of the unit and plugs in like a cartridge



BATTERY CONNECTOR

■ These leaf terminals connect to the battery leaf terminals in the main unit when the faceplate is plugged in, providing power to the microcontroller.

SYSTEM BUS CONNECTOR

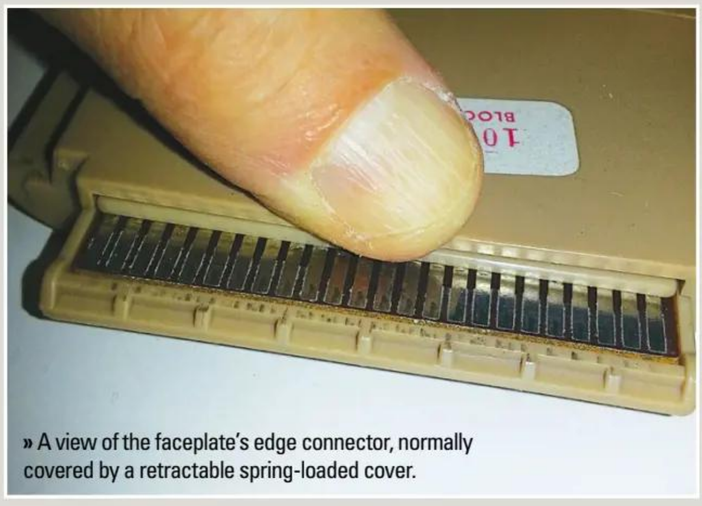
■ The part of the faceplate that plugs into the main unit, these edge connectors provide the microcontroller with access to the controls and display.

CONTRAST KNOB

■ Being able to change the brightness of your screen when there's no available backlight is always handy. Needless to say, you'd often be fiddling with this quite a lot while playing.

GAME CODE

■ The all-in-one microcontroller that includes the game ROM code as well. Originally based on the Intel 8021 and later replaced with the TMS1100.



» A view of the faceplate's edge connector, normally covered by a retractable spring-loaded cover.

GAME & WATCH

At the dawn of the Eighties, Nintendo was exploring the industry it would one day dominate. Long before the NES, Mario, and Zelda there was the Game & Watch – the series of handheld titles that would ultimately sire the all-conquering Game Boy. Damien McFerran explores the history of pocket-size gaming

Year released: 1980 - 1991

Original price: Around $30

Buy it now for: Around £60+ (depending on the model)

Why the Game & Watch range was great… The range offered true portability for the first time in the history of the videogame industry. The units were small, durable and the cell batteries lasted for ages before they needed to be replaced. Forced to work within the confines of the crude LCD technology, Nintendo succeeded in crafting some truly mesmerising gaming experiences, the vast majority of which stand up to scrutiny even by today's standards.

When you look back on the history of videogames it's not uncommon to discover amusing anecdotes regarding defining moments in the industry. For example, rumour has it that Namco's *Pac-Man* was conceived when the game's creator Toru Iwatani glanced at a pizza with one slice missing, and there's an equally famous tale that suggests that Nintendo's renowned Mario was named after the landlord of the company's American offices, who happened to bear an uncanny resemblance to the Italian plumber. Whether or not these stories are actually true is a moot point but it's impossible to deny that they lend our hobby a sense of wonderment, and it's remarkable to think that these staggeringly popular ideas can be born from such humble beginnings.

The genesis of Nintendo's Game & Watch series of handheld gaming devices is recounted in an equally whimsical tale. According to legend, Nintendo engineer Gunpei Yokoi came up with the concept after observing a bored Japanese salaryman absentmindedly playing around with his pocket calculator while travelling to work. If this story is true, then this seemingly innocuous encounter ultimately gave birth to portable videogaming as we know it today. Yokoi was tragically killed in a roadside incident in 1997, and although he would gain worldwide fame and adoration as the creator of the Game Boy, many view his earlier LCD legacy with the most fondness.

Yokoi started working at Nintendo in 1965, assuming the modest role of an assembly line engineer. The Nintendo of that era was a very different beast from the one that we know today; the main focus of its business was Hanafuda playing cards. According to yet another of those irresistible yarns, Yokoi created an extendable arm in order to amuse himself during the long working hours and this device happened to catch the eye of company president Hiroshi Yamauchi, who was inspecting the factory at the time. Yamauchi was on the lookout for a product that could turn around Nintendo's fortunes; the playing card market had slumped badly in the mid-Sixties and the president had tried all manner of different tactics to turn a profit.

Yamauchi was instantly intrigued and tasked the young Yokoi with turning his extendable arm into a bestselling product. It was a risky move that was by no means guaranteed to succeed, but the renamed 'Ultrahand' proved to be a runaway success, shifting more than 1.2 million units worldwide and would prove to be the first in a long line of popular toys to spring from the mind of Nintendo's new star employee. These novel creations would eventually earn the enterprising Yokoi his very own department within the company, known as Research And Development 1 Group.

Towards the end of the Seventies, Nintendo started to wind down its association with toys in favour of videogames, and it was during this time that Yokoi had his aforementioned chance sighting of the bored businessman and his calculator. It was ideal timing: LCD technology was cheap and videogames were big business. However, up to this point, quality gaming was restricted to either the arcade or the home. Several companies had already produced portable games, but they were usually rudimentary LED-based units with uninspiring game designs and were too bulky to be deemed truly mobile. Yokoi watched the efforts of companies like Mattel and Tomy with keen interest. He had his own ideas for the portable gaming industry. ▶

INSTANT EXPERT

The official mascot of the range is Mr Game & Watch, who famously appears in the *Super Smash Bros* crossover series.

60 Game & Watch games were released in total, although only 59 of those were ever on sale to the public – the 60th game was limited to 10,000 units and given away free as a prize.

The Silver game *Helmet* was renamed *Headache* in the United Kingdom because distributor CGL believed people would be offended by the sexual connotation of the original title.

Micro Vs Boxing was re-branded as *Punch Out!* in America to tie-in with the popular arcade game.

Game & Watch titles make cameo appearances in the *WarioWare* series.

In the late Nineties, several classic Game & Watch titles were re-released as part of the Mini Classics key ring range.

Some Game & Watch titles included battery cover stickers which could be applied to prevent babies from removing the battery cover and swallowing the batteries contained within.

Some Spitball Sparkey units were produced with white casing as opposed to the usual silver – understandably, these are worth a bit of cash these days.

The game Egg is identical to *Mickey Mouse* in terms of gameplay – it's speculated that it was produced for release in territories where Nintendo's licensing deal with Disney didn't exist.

Just like regular games, some of the Game & Watch titles have cheat codes that allow you to start on later levels.

It was during the development of the Game & Watch that Yokoi laid down principles of hardware design that would echo through Nintendo's history right up to the present day, dubbing it 'Lateral Thinking Of Withered Technology'. "Essentially, Lateral Thinking Of Withered Technology boils down to using mature technology in novel or radical applications," Journalist and all-round Yokoi admirer Lara Crigger explains. "At the time of the invention of the Game & Watch, LCD technology was everywhere. It was a well-understood process and because prices for individual components had dropped so much, integrating LCD into a product was relatively inexpensive. Some people at Nintendo wanted to use fancier technology in the Game & Watch, technology that would have reduced battery life and raised costs, but Yokoi insisted that affordability was key and that the player cared more about fun gameplay over flashy technology." Yokoi would later apply this philosophy to the production of the Game Boy, and Nintendo has taken a similar stance with hits such as the DS, Wii and Switch.

Yokoi faced a tricky conundrum when it came to deciding upon the best interface for his new product. He quickly decided that a conventional joystick would impede on the Game & Watch's portability, so he began looking for solutions that would take up less space. Many of the early machines simply possessed a couple of buttons with which to control the game, usually corresponding to simple actions such as moving left and right or jumping, but 1982's *Donkey Kong Jr* changed all that. Although it was actually four buttons arranged in a cross shape, with each one corresponding to up, down, left and right, it would later evolve into what we now know as the direction pad, or 'd-pad' for short. This was a development of truly seismic proportions, as Lara acknowledges, "The entire portable games industry wouldn't exist if it weren't for the invention of the d-pad. It was that first, necessary invention that made all portable gaming devices possible. It comes down to basic ergonomics: the d-pad eliminates the need for a joystick, thus streamlining the controller interface and facilitating portability. A controller with a d-pad simply takes up less physical space." Compared to other methods of control available at the time, this new interface presented undeniable advantages. "The d-pad is a more intuitive method of controlling gameplay, compared to the alternatives," continues Lara. "Look at a joystick: to manipulate it, you have to use the sides of your thumbs and fingers – or in some cases, your palm or whole hand. That takes more manual effort than just pushing buttons with a thumb tip."

There was also an element of convergence with this new range of handhelds. Although it seems like a trifling addition in today's technologically advanced world, the inclusion of a digital clock in each game (therefore giving rise to the name 'Game & Watch') was a major selling point back in the early-Eighties. Although LCD watches were commonly available, they were outside the reach of most children so the Game & Watch was a useful device as well as a source of entertainment. A handy alarm feature was also available – possibly to wake up the owner after a particularly heavy night of gaming.

Arguably, the most vital piece of the hardware puzzle was the choice of power source that would bring these tiny games to life. Yokoi opted for 'button cell' batteries, previously seen in digital watches and calculators. Not only were these cheap to replace, but they were also small and therefore fitted snugly within the machines without breaking the sleek, straight lines of the casing or adding any additional weight that might hinder portability. Yokoi's laser-focused drive to ensure his products would be inexpensive to run and not require a constant supply of fresh batteries played a vital part in ensuring the success of the range – a fact he was sure to remember when he came to create the Game Boy almost a decade later.

But there was much more to the appeal of the Game & Watch range than just mere interface design and long-lasting power. Because LCD technology granted the developers a very limited amount of on-screen real estate in which to place their action-packed gaming experiences, the games themselves tended to be extremely focused. "There was little room for design screw-ups," says Lara. "If the game mechanic wasn't simple enough, or addictive enough, then the game failed. It couldn't hide behind flashy FMVs or intricate storylines. It was just player and mechanic, and that's it." The experiences offered by the Game & Watch range may seem primitive by today's standards, but that very same simplicity was a major factor in the ultimate success of the lineage and it's a testament to the concept that the games are still eminently playable even today. "They're appealing for the very same reason that *Tetris* will never really die: simplicity is addictive," comments Lara. "People love activities that are easy to learn, but hard to master." ▶

MICRO VS. SYSTEM™
DONKEY KONG HOCKEY
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GAME & WATCH MULTI SCREEN
GAME & WATCH™ MULTI SCREEN
GAME & WATCH™ TROPICAL FISH
GAME & WATCH FIRE
Behind the fantasy of Nintendo's electronic games is
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NOW TAKE YOUR FAVORITE NINTENDO TITLES WITH YOU ANYWHERE!!!!!!!
NINTENDO GAME & WATCH LETS YOU PLAY DONKEY KONG, OR SUPER MARIO BROS. IN A CAR, A BUS, OR EVEN IN A TREE WITH YOUR FRIENDS!!!
SUPER MARIO BROS.
GAME & WATCH
Nintendo
JUMP

» By the time the Game & Watch Tabletop series appeared, Nintendo was being a bit more hands-on with worldwide distribution, as this advert proves.

» Light-hearted adverts such as these appeared in UK comics like *Eagle*.

» The man himself – Gunpei Yokoi created the Game Boy, but sadly died in 1997.

» LCD will never die: Mr Game & Watch kicking arse in *Super Smash Bros Brawl*.

COUNTERFEIT FIX

As is the case when any product becomes valuable, the Game & Watch market is highly susceptible to fakes. "We've seen a lot of counterfeit items appearing," reveals Andy Cole. "It's mostly boxes and instructions – having a box, especially one in good condition, adds greatly to a game's value."

These high-quality reproductions of original packaging have caused a serious headache for dedicated collectors. "Most collectors look for mint items and have paid great amounts of money to acquire them," explains Mike Panayiotakis. "Finding original Game & Watch boxes intact isn't an easy task, but if someone started selling perfect counterfeit boxes or games, your collection would be instantly worth one twentieth of what you had paid for it because the market would be flooded with perfect items."

Mike is in no doubt as to what effect a wash of fakes would have on the collecting community. "Perfect counterfeit items would make the task of collecting authentic games very difficult," he says. "I don't think there would be any point in collecting the games after that, if such an event ever occurs."

FROM A TO B

Mindful that each Game & Watch could only offer one game due to the limiting nature of the LCD display, Nintendo decided to include two different difficulty settings for each machine, thereby increasing the long-term appeal of each title. Known as 'Game A' and 'Game B', the player had to press the corresponding button before starting play to decide which challenge they wished to face. Game B was usually faster and more demanding, but there were exceptions – *Flagman*, for example, had two different games and the 'B' variant is generally seen as the more enjoyable. Multi-screen release *Squish* is another and in *Judge*, Game B is actually a two-player version of 'A'. Although it was a neat concept and added hours of playtime to each release, not all titles carried this feature – *Climber* and *Super Mario Bros* do not possess Game B options.

GAME BOY GALLERY

Should splashing out cash on original Game & Watch devices not appeal to you, then you can always search for one of the compilation packages that were released for Game Boy machines. The series debuted in 1994 (in Europe and Australia) with *Game Boy Gallery*. The sequel, *Game & Watch Gallery*, followed in 1997 and was granted a global release. The third and fourth games were released on the Game Boy Color in 1998 and 1999 respectively, and a Game Boy Advance instalment hit shelves in 2002. In many cases the games in these collections were visually upgraded variants of the originals. Nintendo followed these efforts up – and sort of came full circle with the concept – with *Game & Watch Collection* for the DS (only to members of Japan's Club Nintendo service, but copies can be found on eBay), which replicates three Multi Screen titles – *Oil Panic*, *Green House* and *Donkey Kong*.

▶ The first Game & Watch title was the simplistic *Ball*. Released in 1980, this endearingly basic game showed only faint glimmers of the kind of depth later Game & Watch titles would possess. The screen was completely blank, the game design was unsophisticated and the LCD character graphics somewhat crude – clearly a case of the developer finding its feet with new technology. Sales weren't astonishing but the game seemed to strike a chord with consumers and this was enough to persuade Nintendo that it was worth creating further titles. *Ball* marked the first release of the 'Silver' series of Game & Watch titles, so called because of the colour of the metallic faceplate. The next step was the 'Gold' series, which was fundamentally the same machine but with a different faceplate and a smattering of static colour on-screen to make the games seem a little more vibrant. This range spawned a mere three titles before it was superseded by the 'Wide Screen' variant in mid-1981. As the name suggests, the display was a whopping 30% larger than the one seen in the Silver and Gold range.

The limitations of the LCD meant that Nintendo was always looking for ways to innovate, and the next logical step was to add another screen to double the amount of gameplay each title could potentially offer. The Multi Screen series kicked off with *Oil Panic* in 1982, but it was the release of *Donkey Kong* that really cemented the success of the range. Easily the biggest selling of all the Game & Watch titles up to that point, *Donkey Kong* was a startlingly faithful representation of the arcade hit. Iconic in design, the Multi Screen range would influence future Nintendo design choices. "It's no secret that the Nintendo DS was based on the original Multi Screen Game & Watch design and that just shows how far ahead of its time this idea was," says collector Mike Panayiotakis.

Released in 1983, the Tabletop series was something of a departure from the norm. It sacrificed portability for more impressive colour visuals and ran off bulky C batteries. Sales of this machine were steady but nowhere near as impressive as its Wide Screen and Multi Screen cousins, and therefore only four Tabletop titles were ever produced. A refinement of the technology resulted in the more mobile 'Panorama' series a few months later, which used a foldout mirror to enhance the vacuum fluorescent display. Nintendo's pursuit of colour gaming culminated in 1984's ill-advised 'Supercolor' range, which was in fact just a standard LCD with a colour overlay. Only two games were ever produced, making this the least successful entry in the Game & Watch canon. Sensing that gaming was also a social pastime, Nintendo decided to publish the 'Micro Vs' series in the same year, which offered simultaneous two-player action thanks to a pair of small detachable controllers.

Also in 1984, the final hardware revision was released in the shape of the legendary 'Crystal Screen' machines. These were more traditional games in keeping with the Wide Screen style, but they possessed a transparent LCD display. Sadly, these screens were susceptible to damage. Marketed as a luxury item, the range didn't achieve the same kind of fame as the more traditional Wide Screen games, which by this point had been relaunched as the 'New Wide Screen' range.

Although it's strange to think about it now, Nintendo didn't really command much of a presence outside Japan at the time, so worldwide distribution of early Game & Watch machines was handled by other companies. These included Mega (USA), CGL (UK), Ji21 (France), Videopoche (Belgium) and Futuretronics (Australia). Many of these firms would repackage the devices and in some cases remove the Nintendo logo altogether, instead replacing it with their own.

By the mid-Eighties Nintendo had released the NES home console and the Game & Watch range took a backseat role. As the decade drew to a close, the seemingly vast reserves of innovation began to run dry, but it was ultimately Yokoi himself that would deal the death blow to his beloved pocket-sized offspring. *Zelda*, the penultimate release in the range, hit shelves in 1989 – the

» Believe it or not, but these are actual erasers of various Game & Watch titles. Perfectly formed, it's almost a shame to actually use them for their actual purpose.

» Time Out was another company that distributed Game & Watch machines in the US – note the lack of Nintendo branding on the machines.

DIFFERENT VERSIONS

Silver Range
The one that started it all. The Silver range consisted of five different titles and lacked the colourful screen overlays that would be seen in later titles. Five games were produced in low quantities, and as a result, they're pretty rare these days.

Multi Screen
Predating the Nintendo DS by over 20 years, the Multi Screen version effectively gave twice as much action by adding an additional LCD display. Because the device could be closed when not in use, it made it even more durable. A smaller version that opened sideways was also released.

Tabletop
Bulky, power-hungry and practically un-portable, the Tabletop range was something of a backwards step, recalling memories of the unwieldy electronic games of the late Seventies. Unsurprisingly, the range didn't sell as well as the traditional G&W machines, although in terms of gameplay these are still wonderful machines to own.

Micro Vs
Providing much-needed multiplayer action, the Micro Vs range featured two small joypads that could be stored within the system when not in use. The thin screens were less welcome, however, and the series was not as successful as might have been expected.

same year as Yokoi's newest pet project: the Game Boy. It was instantly obvious that the writing was on the wall for the videogame-and-clock combo. The very last entry in the series was a loving homage to the game that started it all – 1991's *Mario The Juggler* recycled the gameplay from *Ball* but showcased gorgeous screen artwork. It was the end of an era, but with the new-fangled Nintendo wooing gamers the world over, few seemed to mourn its passing.

Given the durable nature of the Game & Watch range, the appealing design of the casing and the desirable Nintendo branding, it's little surprise that a truly hardcore collecting scene has risen up over the past few years. The reasons for this differ depending on which collector you happen to speak with. "For most of today's collectors, it's simply nostalgia," comments Game & Watch fanatic Andy Cole. "People now find themselves with the resources to buy the games they lusted after in their childhood, which their meagre pocket money couldn't buy them." Others do it more for the love of the brand, such as Dutch collector Martin Van Spanje. "I have always loved Nintendo games and the Game & Watch series are basically where it all started for that company," he says. "I want to see them all, and find out how Nintendo made progress."

Whatever the reason, amassing all 60 of these unique devices isn't an easy (or cheap) feat, especially with the coveted handhelds becoming more and more rare as time marches on. "Even though many of the games can be found for a fiver, you need lots of cash if you want all 60 of them," explains Martin. "My collection has already cost me around 3,600 euros, and I'm still missing four of the more expensive games. Also, I don't collect mint-condition games and I don't care about the packaging and user manuals. If you want all of that as well, you need to at least double your piggy bank." Indeed, boxed specimens in pristine condition can fetch prices well into triple figures and the elusive '60th' game – a special edition of *Super Mario Bros* produced in 1987 – is very hard to locate. "This is the Holy Grail of Game & Watches and remained almost completely unknown in collector's circles for over a decade," explains Andy. "It was produced as a prize for a competition for owners of a NES F1 racing game. Ten thousand were given away in Japan only, making this by far the rarest Game & Watch title. Only in the early 21st Century, when collectors in Japan spread the word, did this game become widely recognised. Because of its rarity, its value is higher than that of any other game in the range – expect to pay about £500 just for an unboxed specimen."

Another aspect that makes the range so appealing is the durability of the devices. "As can be seen by the number appearing in auctions, they are still going strong, thanks mostly to their extremely simple electronics," comments Andy. "They are probably more reliable than a games console of today. I expect that they'll still be around long after the last PlayStation is in landfill." Martin expands on this: "The games were intended for kids and fit inside your pocket. If you keep them safe, they will last for ever even if you play them regularly."

Has our gang of Game & Watch experts got any advice for prospective collectors? "A potential collector should first set a target," advises Mike. "There are many things to collect and buying everything isn't an option unless you have unlimited money. Do you wish to collect boxed games? Do you wish to get special versions of the games? Do you wish to get all 60 games? You need to focus on specific items and create a list of things you wish to collect." Andy gives similar guidance: "The answer I always give to this question is to go slowly, as it's possible to get a complete collection of every title in as little as a month or two if you have the money, but where's the fun in that? Decide on a goal before you start. For example, decide if you want loose or boxed games, special or regular editions, then stick to your goal and be patient to wait for the right games to come along. My collection took me about five years to complete but I got some extremely good bargains and that is more satisfying than blowing a few grand all in one go." ✱

Special thanks to Andy Cole for providing exclusive hardware photography for this feature and thanks also to Justyn Chan for additional images.

Game Pocket Computer

» **MANUFACTURER:** Epoch » **YEAR:** 1984
» **COST:** ¥12,000 (launch), £120+ (today, boxed), £60+ (today, unboxed)

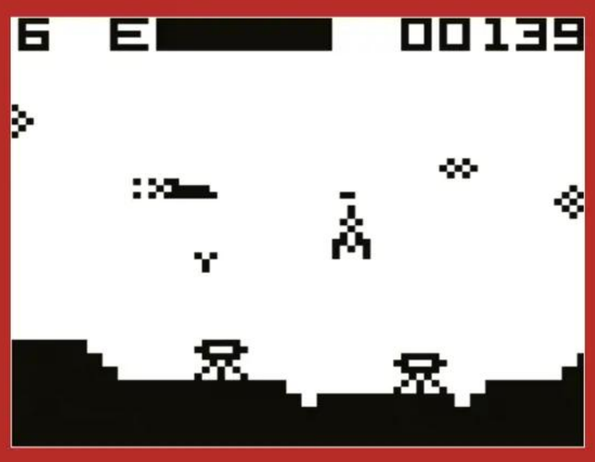
After achieving initial success in the home gaming market with *Pong* consoles and the Cassette Vision, Epoch decided to branch out into a largely unexplored area of gaming with the Game Pocket Computer, a somewhat bulky handheld console which sported a similar look to the company's Super Cassette Vision home console. Though its design is largely unremarkable, the system features a window through which the label of the game cartridge can be read and includes a graphics tool and a simple puzzle game as part of the system software.

The Game Pocket Computer was a capable little machine for its day and launched at a fairly high price – just a few thousand yen less than the home consoles of the era. The console was not at all successful, and as a result, only five games were released for Epoch's system – *Astro Bomber*, *Block Maze*, *Mahjong*, *Reversi* and *Sokoban*. Those with the means to use Japanese auction sites should therefore find that it's very feasible to pick up a complete collection, though it will inevitably require patience and a deep wallet. *

ESSENTIAL GAME

Astro Bomber

All five of the Game Pocket Computer's officially released games are fairly basic versions of well-known game templates, and three of them are puzzle games. If you're looking for something with a bit of action, the system's only shoot-'em-up is a better choice than *Block Maze*. *Astro Bomber* is effectively a clone of Konami's arcade hit *Scramble*, and sees you shooting down airborne targets and bombing missile and fuel silos. While it's not an original concept, it's a well-executed version of an arcade favourite and that's always welcome.



Game Pocket Computer fact

■ Epoch would experience much greater success in the Nineties with a less traditional handheld gaming device – the infamous Barcode Battler.

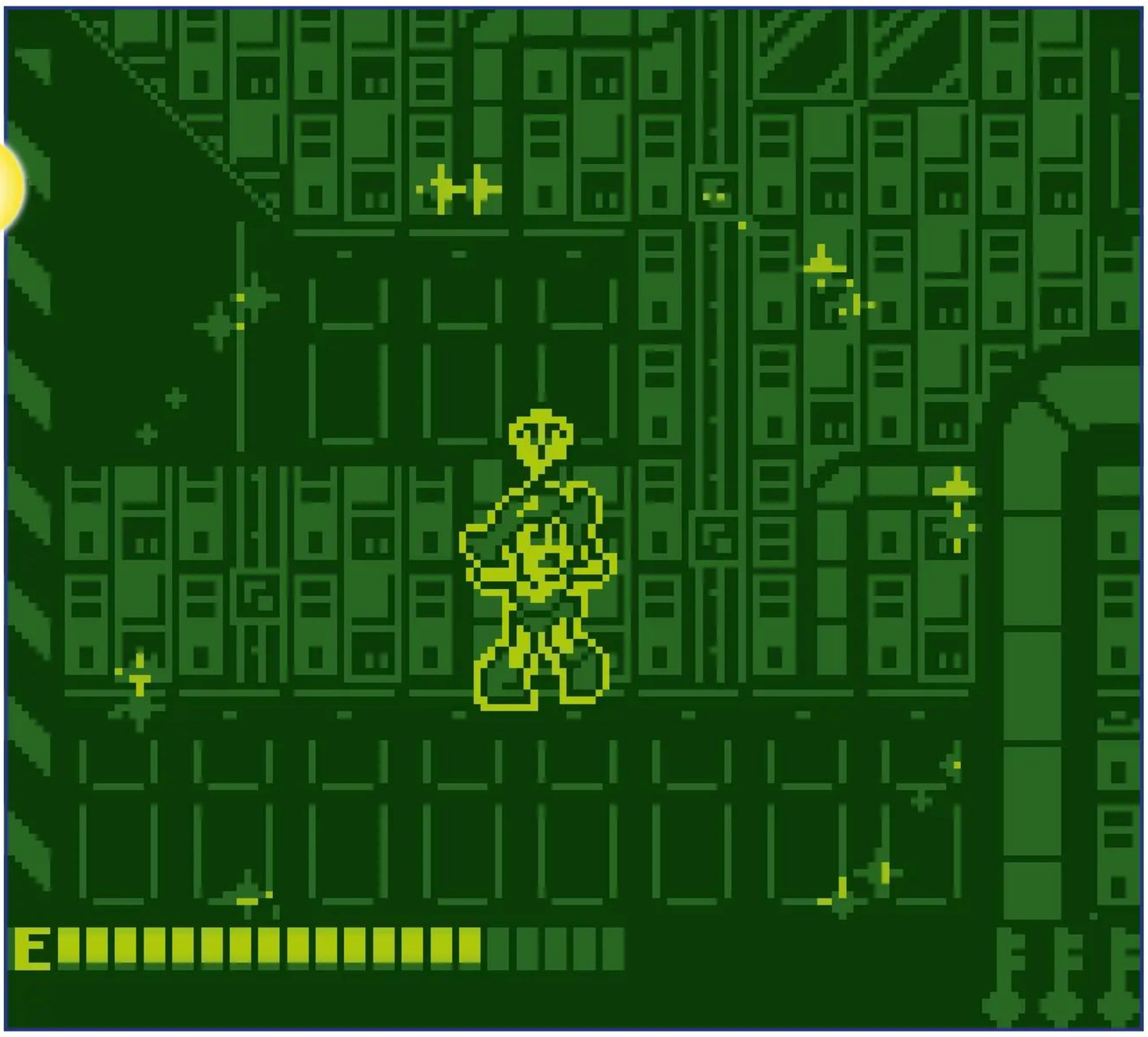
PROCESSORS: 8-BIT NEC MPD78C06 (6MHZ)
GRAPHICS: 75X64 BLACK AND WHITE LCD
MEDIA: ROM CARTRIDGE (UP TO 16KB)
AUDIO: ONE CHANNEL BEEPER
SYSTEM SOFTWARE: 4KB ROM
RAM: 2KB RAM

SYSTEM SUPPLIED BY **EVAN AMOS**

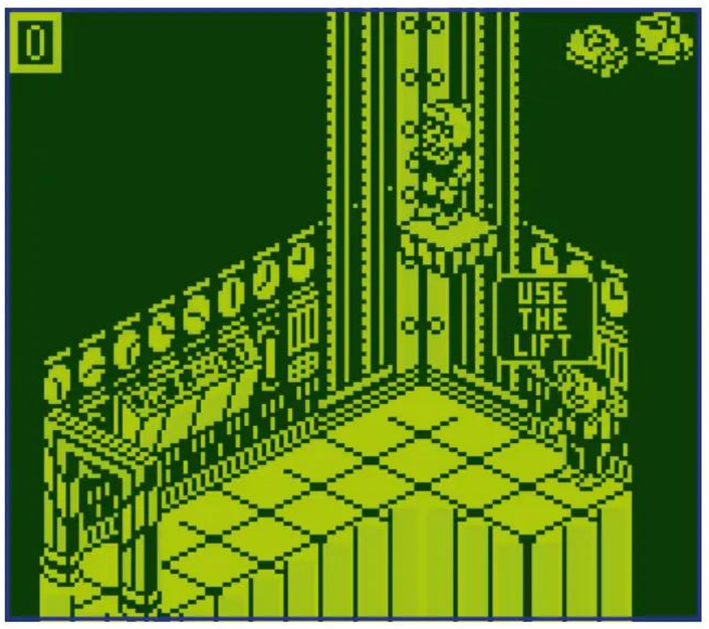
The Impact Of The GAME BOY®

OVER THREE DECADES AFTER ITS LAUNCH, THE GAME BOY HAS BECOME MORE THAN A GAMING ICON – IT'S A TRUE CULTURAL PHENOMENON. WE LOOK BACK AT HOW NINTENDO'S MACHINE ACHIEVED SUCH A FEAT, AND SPEAK TO THOSE STILL FLYING THE FLAG FOR THE HANDHELD TODAY

Words by Nick Thorpe and Martyn Carroll



» [Game Boy] *Avenging Spirit* is one of the great rare games for Game Boy collectors to hunt down.



» [Game Boy] The Game Boy's array of licensed games were popular with younger gamers.

When the modern handheld console market developed in the late Eighties and early Nineties, it quickly became clear that one of the manufacturers was significantly more attuned to the challenges of creating a portable platform than the others. The designers of the Atari Lynx focused on pairing the familiar 6502 CPU with high-end custom graphics tech, with Epyx giving the system arcade-style graphical features like sprite scaling. Sega and NEC focused on how they might leverage their existing hardware in a new environment, ultimately basing the Game Gear and PC Engine GT on the Master System and PC Engine respectively. All of these consoles seemed to be born of similar thinking: they were consoles designed in service of the games. They allowed players experiences close to what they'd get elsewhere, and allowed developers to continue using the techniques they had elsewhere. With the Game Boy, Nintendo approached the problem from the other end – the company designed the hardware in service of the gamer.

Nintendo reasoned that the ability to actually *play* the machine was more important than *what* it could play, and that less impressive software was a worthy sacrifice. As a result, more than most pieces of videogame hardware, the Game Boy is a product of compromise. Where other handhelds had colour screens, the Game Boy had four greyscale shades (or green, if you're staring at that original screen). The other machines were backlit, and Nintendo's hardware relied on getting just the right level of light. Nintendo even opted for a custom processor based on the Z80, rather than the 6502 used in the NES, meaning that its developers couldn't simply reuse code. But it didn't matter if it couldn't play *Super Mario Bros* – Nintendo could just make a new *Mario* game tailored to what the machine *could* do.

Not everybody was impressed – it has been said that there was even some deal of scepticism prior to launch. Even those who would later come to be associated with the platform didn't always get a great first impression. "I do remember when a neighbour classmate showed off his Game Boy to me. I'd guess this was summer 1991, since he was playing *Blades Of Steel*," says Johan Kotlinski, author of the Game Boy music tool Little Sound DJ. "Being outdoors in the sun, it was rather difficult to see what was [happening] on the screen, and it did not come off as a particularly compelling entertainment option. As you might remember, there were a lot of competition at the time – most of us kids had a Commodore 64, NES or even an Amiga, and for mobile gaming the Atari Lynx seemed more desirable, even if too expensive. I already had my *Tetris* needs served by an original C64 tape, and the Game Boy did not seem like an improvement at the time. Certainly the load times were much faster on the Game Boy, but we kids had lots of time to waste anyway."

But Nintendo had made a judgement call, and it paid off. "Even though it was underpowered and its screen had issues with ghosting and no lighting, all those things that kind of worked against it also worked in its favour – it made a very economical system," says Jeremy Parish, a veteran videogames journalist ▶

BOY WONDERS

GAZ THOMAS,
Developer of
Owyn's Adventure

JEREMY PARISH,
Author of
Game Boy Works

MATHEW BOYLE,
Game Boy
collector

MINI MAKING OF...

PRINCE OF PERSIA

***ED MAGNIN** CONVERTED JORDAN MECHNER'S CLASSIC TO THE GAME BOY*

How did you end up working on the Game Boy and coding *Prince Of Persia*?

My boss woke up one day and decided to swap me from the NES to the Game Boy. It was the best thing he ever did. The Game Boy represented freedom for me. When I'd go to GDC or E3 I could carry my work in my pocket and walk up to a booth and show it to someone, no appointment necessary. I did *Caesars Palace* first, then *Prince Of Persia*.

Were you a fan of Jordan Mechner's original game?

I quickly became one. I played the PC version but knowing he did the original on the Apple II was even more impressive. I played the PC version constantly to make sure ours worked as well or better on the Game Boy.

Did you have any say in the cart size selected for the game, and was it a struggle to make it fit?

Publishers were cheap. They didn't want to pay for a larger cartridge or a battery to back-up RAM in the cartridge. It would have cost a dollar or two, but then multiplied by their mark-up that would have added five or six dollars to the price of the game. If you look back, only Nintendo and maybe one or two publishers ever released games on larger cartridges or with memory backup – the rest of us had to make convoluted password save systems. And yes, it was a struggle to make it fit.

You later did a second version of the game for the Game Boy Color. Did the updated hardware make for an easier conversion?

Not really. In addition to adding colour, Nintendo required developers to add additional levels or features, so we added a training level. At the very end of the project, the Nintendo colour police (Club Wario) asked us to make every level a different colour. We had worked hard to make the palace and dungeon levels look really good, so we resisted changing colours. On a conference call I asked Nintendo, 'Do you want it to look good or do you want obvious use of colour?' They answered, 'Obvious use of colour.' That was it. We had to give them what they wanted or they wouldn't let us publish it.

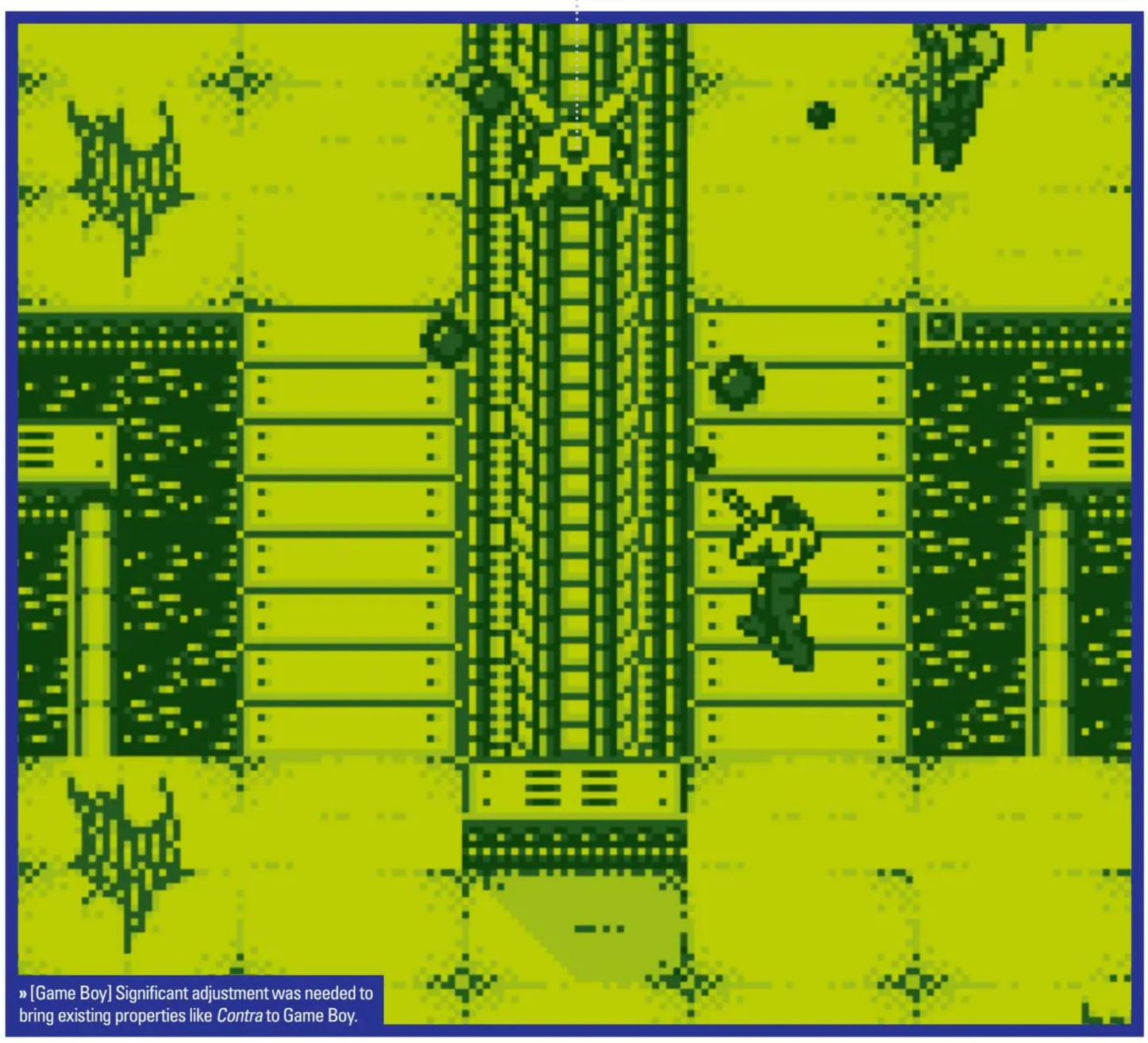
"It was the first time I had ever seen a console, let alone a handheld, and it was very exotic"

Gaz Thomas

and creator of the *Game Boy Works* video and book series. The Game Boy was half the price of the more impressive Atari Lynx, and would run three times as long on fewer batteries. This made it attractive to parents, and the built-in display meant that it didn't tie up the TV. It was a viable purchase, even for families that already owned a console. "I first received a Game Boy for Christmas when I was a kid. I'd been trying to play my brother's NES and so I got my own portable system to keep peace in the house," says Mathew Boyle, a Game Boy fanatic whose game collection consists of approximately 800 games. "Of course, I was a bit too young I think to really appreciate it, but I would play *Kirby's Dream Land* until the batteries ran dry!"

As good as games like *Kirby's Dream Land* were, one game overshadowed the rest when it came to selling the system to players – including those with no previous gaming experience. "The first time I laid my eyes on a Game Boy was at my cousin's house, he had gotten one for Christmas. It had *Tetris* on it and he was showing my dad and I," says Gaz Thomas, an indie developer whose work includes *Owyn's Adventure* as well as contributions to *Hydroventure* and *Stealth, Inc*. "It was the first time I had ever seen a console, let alone a handheld, and it was very exotic. I was only five at the time but I could understand the game and the music was entrancing!" Indeed, *Tetris* could be universally understood and its new handheld home proved to be conducive to spreading the game's appeal. Plenty of young players would frequently find their systems being borrowed by parents and grandparents.

Indeed, while Sega and Sony get much of the credit for bringing older audiences into the videogaming market during the Nineties, Nintendo's machine had a killer app that appealed to players across all demographics. "It definitely did reach a broader spectrum of gamers than the NES did, and Nintendo recognised that from the very beginning," notes Jeremy. "Some of their early ads were targeted at working professionals and adults, promoting games like *Tetris* and saying, 'Hey, you can enjoy yourself when you're waiting at the airport – it's not just



» [Game Boy] Significant adjustment was needed to bring existing properties like *Contra* to Game Boy.

» [Game Boy] Puzzle games like *Pipe Dream* worked well with the Game Boy's blur-prone display.

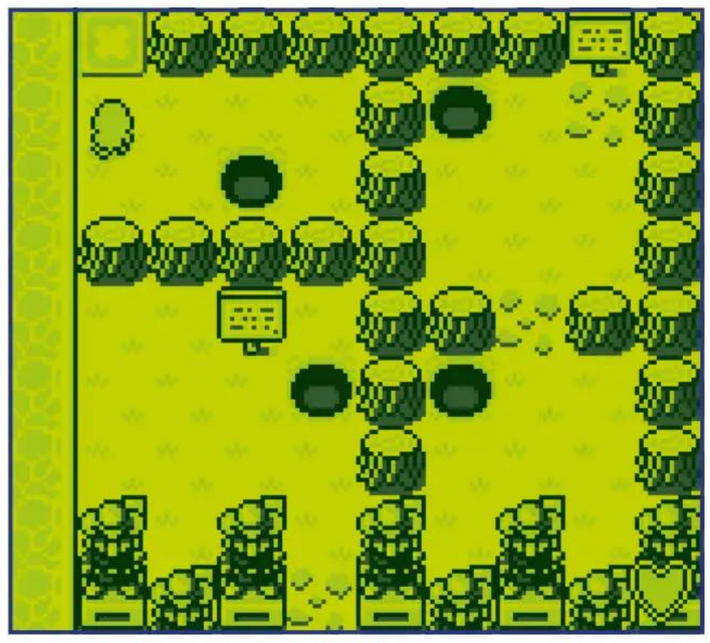
for kids, even though it's called the Game Boy.'" That campaign had the tag line "Have you had your fun today?" and deliberately targeted non-gaming media, appearing in magazines such as *GQ* as well as on TV. Even then-First Lady Hillary Clinton admitted to buying a Game Boy for herself in a 1993 interview with *Time* magazine, after having become a fan through playing her daughter's machine.

The Game Boy had a long tail, too. While the first couple of years played host to more major hits than later years, the hardware saw at least a few games hit the 1 million sales mark every single year. That's pretty remarkable, as Game Boy owners didn't buy a lot of games. Nintendo's figures show that just 4.22 pieces of software were sold for every piece of Game Boy/Game Boy Color hardware – a low number compared to the 8.07 games sold for each NES, or the 7.72 games for each SNES console. It didn't hurt that the system had a late hit in the form of *Pokémon Red & Blue* – the games gave the format a shot in the arm in Japan when introduced in 1996, and plenty of hand-me-down systems were dusted off when they made their way west in 1998 and 1999.

In the financial year ending March 1998, the Game Boy was old hardware (the Game Boy Color still having yet to be introduced) and the world was fixated on home consoles with 3D graphics. But even at what should have been its loweest ebb, the low cost and timeless library of the Game Boy, combined with the absence of any serious competition in the handheld console space, meant that Nintendo managed to sell through 10.37 million hardware units. The Game Boy Color was introduced just months later and revitalised hardware sales – and even though that model saw plenty of exclusive software, major releases including *Pokémon Gold & Silver* and *Dragon Warrior Monsters* still supported the old model. Only when the Game Boy Advance was released in 2001 did the classic system truly ride off into the glorious greyscale sunset.

That level of reach alone gives Game Boy nostalgia a much wider resonance than most other machines can claim. But there's something ▶

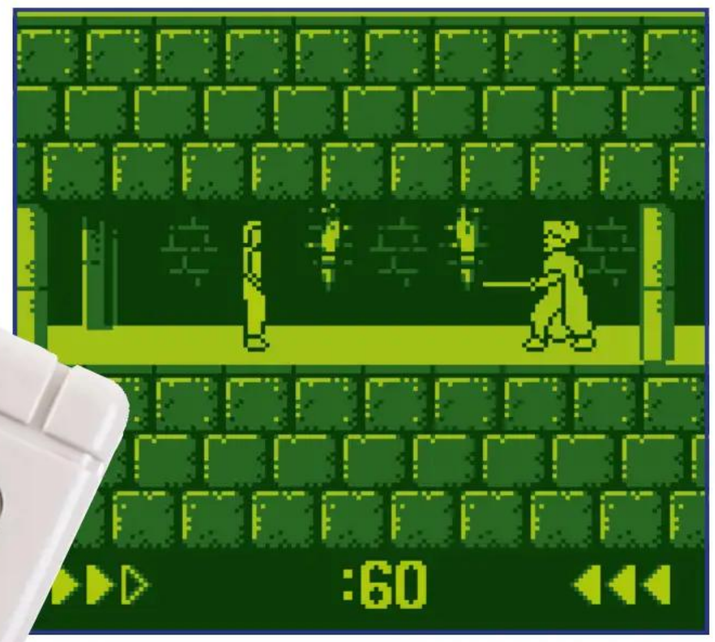
» [Game Boy] Bespoke Game Boy projects like *F-1 Race* sold in their millions, despite generic branding.



» [Game Boy] Games produced by Shigeru Miyamoto don't tend to fly under the radar, but *Mole Mania* has.

» [Game Boy] *Pokémon* kept the system from flagging when most machines would run out of steam.

» [PC] *Owyn's Adventure* was born from an organised effort to make Game Boy-style games.



▶ more to it – the hardware choices Nintendo made gave the Game Boy a very distinctive identity, a look and feel that its competitors can't match. Show most people a screenshot of *Lemmings* on the Atari Lynx or the Game Gear, and they'd be hard-pressed to identify the platform. But when you show people a screenshot of the same game running on the Game Boy, there's no hesitation – the four shades (green if you're original, grey otherwise) are a defining characteristic of the platform. And the Game Boy sounds unique amongst Nintendo systems too, not inheriting its sound hardware from the NES or having anything in common with the SNES. Combined with its overwhelming commercial success, these unique distinguishing factors have turned the Game Boy into a true cultural icon, recognisable even to those who weren't around to experience the system's birth over 30 years ago.

Take the form factor of the system, for example. When Nintendo chose to reintroduce its *Game & Watch* classics in mini keychain size in the Nineties, it did so in Game Boy-style casing. The machine has also been the basis for all sorts of novelty products, from shampoo bottles to drinking flasks and alarm clocks. Though Nintendo would abandon the vertical orientation beginning with the Game Boy Advance, it was widely imitated by manufacturers of lower-level handhelds in the

» [Game Boy] Game Boy games often offer unique takes on existing properties, like *Super Mario Land*'s shooting sections.

"Both the Game Boy and the Spectrum are Z80, so I already had a head start"

Jas Austin

Nineties, from cheap 'block game' handhelds to the likes of the Mega Duck and the Supervision. Even today, contemporary machines such as the Playdate and Analogue Pocket draw clear inspiration from the Game Boy's classic design.

The limited display of the system has also been a visual inspiration for many, including Gaz, whose game *Owyn's Adventure* uses the Game Boy visual style. What inspired this choice? "I started *Owyn's Adventure* as an entry to the Unofficial Game Boy Jam run by my friend Jamie, who convinced me to take part away from another personal project that I'd gotten a creative block on," explains the developer. If you're a regular reader of our Homebrew section, you'll likely be familiar with such development drives. "It was two weeks to make as much as you could so long as the game featured just four shades of the Game Boy green. After two weeks I had some systems in and a rushed level, so I thought I'd spend a couple of weeks working on the level design but kept going as I was enjoying working on it so much."

The existence of an unofficial jam suggests that there's no shortage of people interested in making Game Boy-style games, and a look around the indie scene bears that out. Browse the online store for the Nintendo Switch and you'll find games like *Save Me, Mr Tako* and *Awesome Pea* that lift their limited colour palettes and green hues directly from the original model of the Game Boy. It's not just on the handheld platform that you'll find this reverence for Nintendo's original machine, either – PC games like *Madcap Castle* and *Squidlit* also pay homage to the system's distinctive display, while others like *Evoland 2* and *PlataGO!* include the Game Boy as one of many retro gaming styles. The look even goes beyond games, as mobile apps like Retrospecs, Bitstagram and Retroboy offer camera filters designed to produce images like the Game Boy Camera add-on. So what makes the look of the machine so popular with indie developers? "A couple ▶

MINI MAKING OF...

ALIEN 3

JAS AUSTIN REVEALS THE STORY BEHIND HIS UNIQUE INTERPRETATION OF ALIEN 3

You worked on the Spectrum before moving over to the Game Boy. Was it a smooth transition?

Yes, it was pretty smooth. Both the Game Boy and the Spectrum are Z80, so I already had a head start. What was new to me was hardware support – scrolling and sprites for example.

Were you able to watch the *Alien 3* movie prior to starting development?

Sadly no, but the team did get to attend a private screening in a small cinema in Leicester Square shortly before the film was released, which was pretty exciting for me. For the design, we only had a copy of the script.

There must have been a temptation to do a typical 2D run-and-gun, like the other versions of the game?

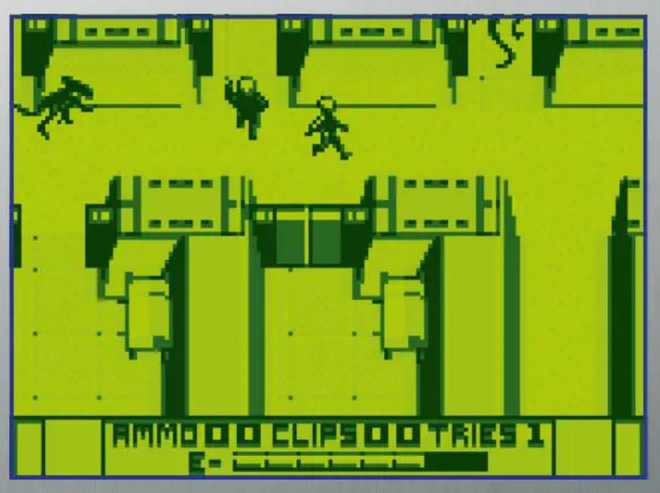
A side-view game was the obvious choice but we purposely avoided doing that. My last few games had all been side-scrollers and I was a bit sick of doing them, so I pushed for the idea of doing something top-down with a little less straight action. Plus, at the time, I had a feeling the other versions of *Alien 3* would be side-scrolling actions games and thought this would help our game stand out.

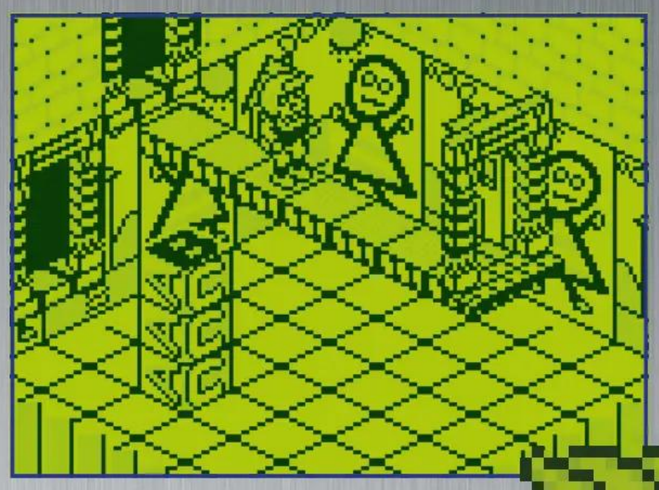
Did you receive any feedback – or interference – from the movie studio?

Fox had no feedback or input into the game design, I'm not sure back then that the film companies saw the games industry as anything important. However any larger graphics of the actors had to be signed off by Fox and the stars.

How long did the development last, and was it a smooth development?

It wasn't the smoothest development. I started on the game and made a very quick prototype to demonstrate the top-down scrolling view. But then I got pulled off the project to work on another game, *Spider-Man 2* if I recall. Sadly my replacement on *Alien 3* had to stop due to health reasons, so after finishing the *Spider-Man* game I jumped back on board. The previous coder's work wasn't something I could use so I went back to my original code. Because the development was now running late the pressure was on to get it finished. It was tough but I managed to finish the coding in about five weeks, which even back then was pretty quick.





MINI MAKING OF...

MONSTER MAX

JON RITMAN ON CREATING HIS MINI ISOMETRIC OPUS FOR THE GAME BOY

Did you find it easy moving on to Game Boy development, due to the Z80-like CPU?

Z80-like? Yeah, if they had castrated a Z80. No exchange registers, no index registers, no 16-bit additions or subtraction instructions. It was doable but also horrible.

Were you asked to create an isometric game in the style of *Head Over Heels*, or was it something you wanted to do?

I had just finished my own development program that Rare used for many games, and at that point I just wanted to use it for something myself. There were no isometric games for the Game Boy during that time, so I thought it would be an interesting challenge.

The monochrome screen was probably the Game Boy's biggest shortcoming. Did you have to mitigate for it during the design?

To be honest, as far as an isometric game was concerned the Spectrum was also monochrome, so no change there. The biggest problem with the screen on the Game Boy was that there wasn't a proper hi-res mode, so I had to mess about a lot to create one using interrupts to change modes as the raster passed over the screen.

The issues you had with the publisher are well-known. Do you think the game would have had more impact if its release had been handled better?

If reviews made no difference at the time why would anyone bother to submit a game? *Monster Max* got great reviews when we finished it, but how many would remember it when it was eventually released nearly a year later?

Is it correct that Nintendo was interesting in publishing the game at one point?

Don't remind me that I made the biggest mistake of my career. Yes, Nintendo was interested but we would have had to remodel the main character to be one from the Nintendo stable. I can only plead tiredness for my failure to do so.

Finally, was a Game Boy version of *Match Day* ever considered?

I didn't think it would be possible to make a football game that I would be happy with on the Game Boy. I did think about it, but only for a very short time.

▶ reasons as to why the Game Boy aesthetic is popular come to mind," says Gaz. "Firstly the instant nostalgia back to when we were younger – fun, easy-to-learn games. Secondly, for me especially, it lets you worry less when drawing the artwork. It takes a bit to get into the mindset of four colours but once you draw with them for a bit you learn to know when you've done enough." There are limitations, of course. "You can't go overly detailed or things just appear noisy and unreadable, less becomes more as players fill in the gaps."

As well as the four shades, many developers choose to employ the green screen – this is in spite of the fact that many players will have experienced Game Boy games on other systems that represent the system's graphics differently. Indeed, even this magazine uses the green look for its Game Boy screenshots. Why is this such a crucial part of the look? For Gaz, it comes down to simple nostalgia. "The green is what people who have played on the original console think of when they hear 'Game Boy'. I've seen some great games with four shades but green represents the original console for me." Of course, one of the things that comes with imitating the style is that you can cherry pick the best bits of it, and one thing that tends to be left out is the motion blur that was characteristic of the early Game Boy systems. "I think developers don't chase the motion blur effect as it's not an aesthetic that lends itself to all gameplay types," explains Gaz. "A player who never used the console might even think it was a bug or glitch!"

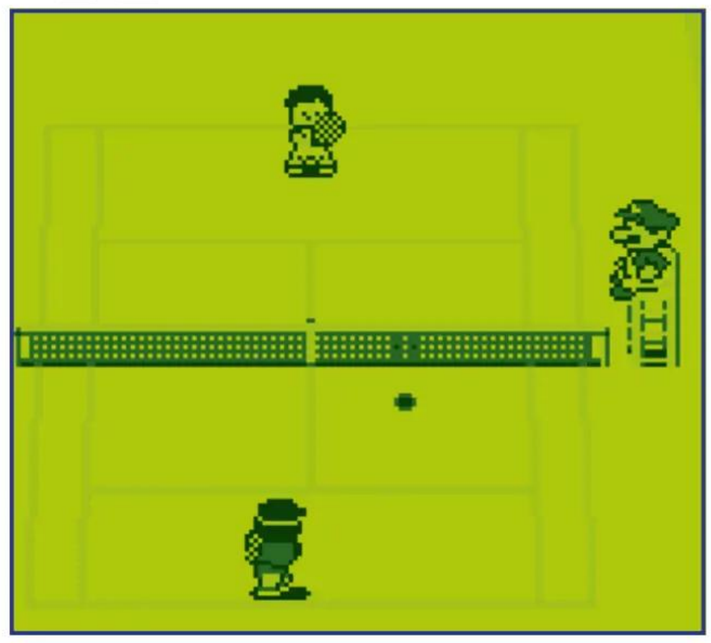
As you'll likely remember if you were around at the time, the sound of the console was popular too. In 1992, two of the Game Boy's flagship titles inspired singles that reached the top ten in the UK singles charts – *SuperMarioLand ft MC Mario* by Ambassadors Of Funk, and *Tetris* by Doctor Spin (in actuality, musical theatre composer Andrew Lloyd Webber and record producer Nigel Wright). British readers will also likely remember an Ariston advert which featured the title music from the Game Boy conversion of *RoboCop*. Those achievements are pretty astonishing, considering that the console's sound capabilities were very limited even by gaming standards at the time, and speak more to the system's massive popularity than its musical merits.

But the Game Boy's sound remains iconic way past the system's commercial heyday. With the rise of flashcarts, anyone can use homebrew programs like Nanoloop and LSDJ (Little Sound DJ) to turn their childhood handheld into a powerful instrument. But why create LSDJ in the first place? "The stars were aligned," says Johan. "I had put my heart into making music on the Amiga for a couple of years and was looking for something new. For a long time I had imagined a portable music-making tool, that would allow me to try out and annotate music ideas on the go." The choice of platform was more coincidental than deliberate. "Some of my friends were starting with Game Boy Color programming, I thought it seemed fun and assembly programming might even be a useful skill when looking for jobs. The Game Boy music programs at the time seemed rather limited and I thought making the best Game Boy music program could be my humble claim to fame – not that I imagined many would ever use it."

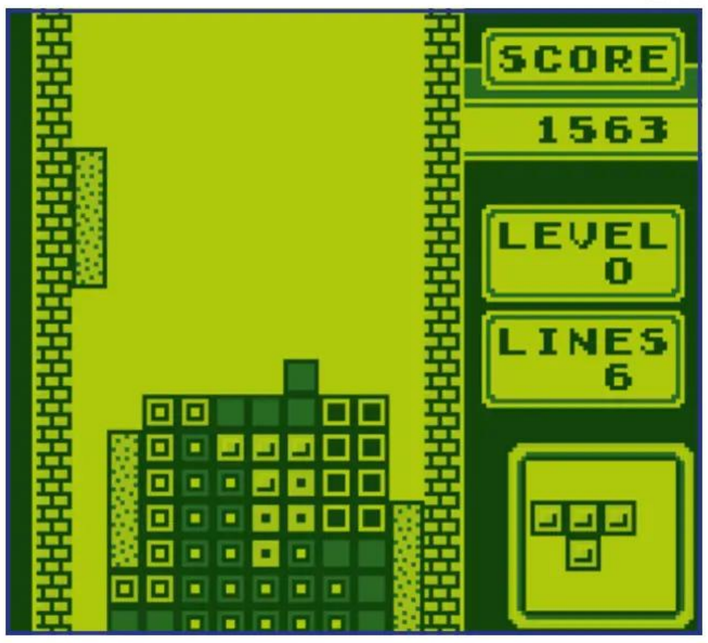
Johan's software did become rather popular, as chiptune artists have adopted the Game Boy as a favourite platform. What is it about the system that makes it so attractive? "The Game Boy sound is technically not that extraordinary and is maybe best characterised by its limited 4-bit dynamics. Time has shown though, that it is a rather good music system," he says.

"The green is what people who have played on the original console think of when they hear 'Game Boy'"

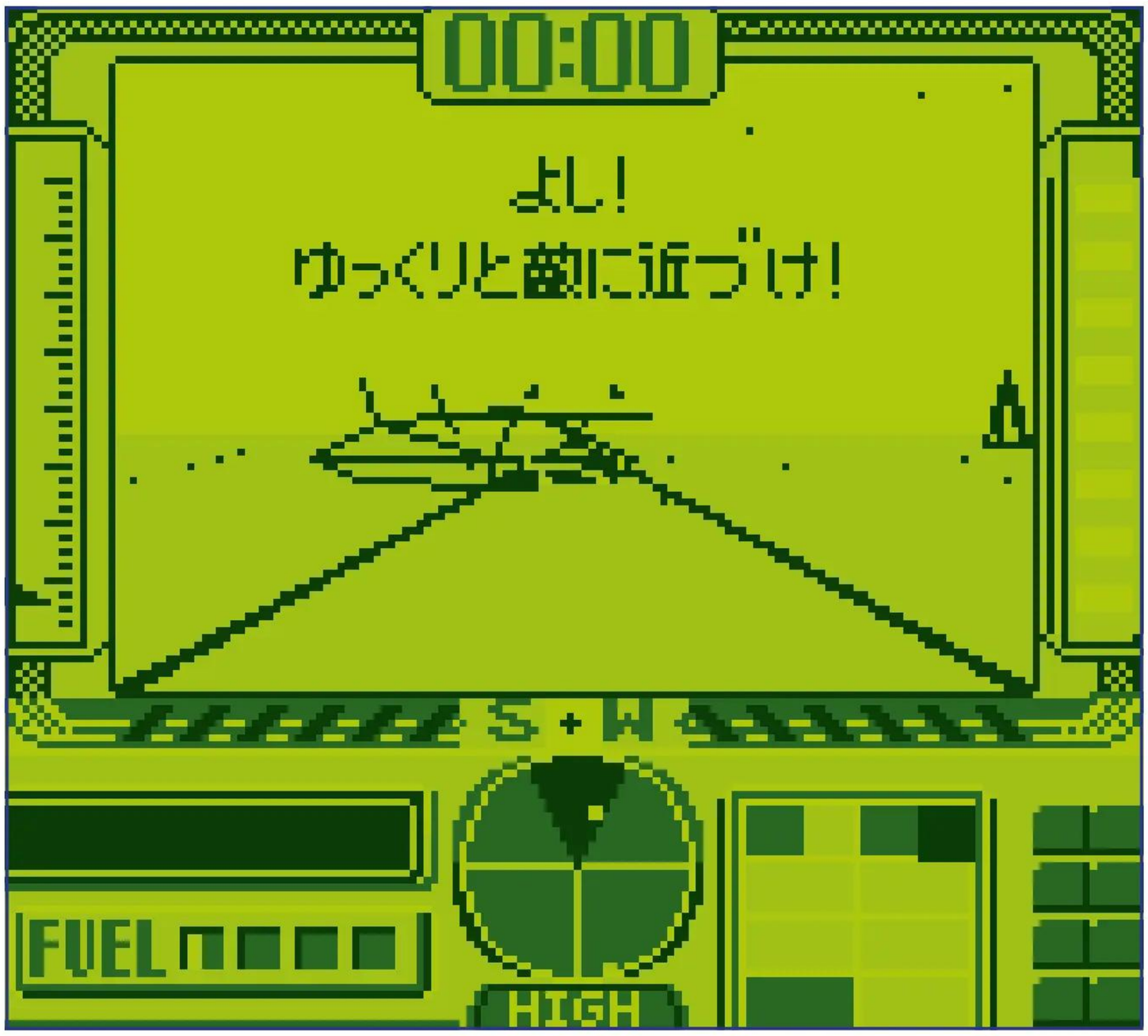
Gaz Thomas



» [Game Boy] Mario often turned up to boost the appeal of early games with generic branding, like *Tennis*.



» [Game Boy] The music of *Tetris* has inspired a number of musical tributes, including a top ten single.



» [Game Boy] Games like *X* proved that the a little programming wizardry could overcome the hardware's limits.

» [PC] Chipzel's Game Boy tunes were the soundtrack to indie hit *Super Hexagon*.

» [PC] *Squidlit* goes further than other Game Boy-inspired games, sticking to sprite restrictions and other limitations.

» [PC] Various indie developers interpret the Game Boy green differently, as seen in *Madcap Castle*.

"The capabilities are well-balanced between two square wave channels, a programmable wave table and a noise generator, so it lends itself equally well to many music genres. It is easy to program and the Game Boy has ample RAM, ROM and decent processing power, so it's possible to splurge on things like nice UI, samples, soft synthesis, even going overboard with effects so that one can sculpt the sounds to ones desire. The serial port is a nice bonus, and crucially those square wave basses just happen to sound great in a big sound system."

LSDJ has gone on to become a key tool in the repertoire of many chiptune musicians – those who use it include popular acts such as Anamanaguchi, Toriena, Chipzel, DJ Scotch Egg and Trash80. "I'll mention Covox, Lo-bat and Goto80 since I did a lot of shows with them back in the day," adds Johan when asked about his favourite acts. Like the Game Boy graphical style, the Game Boy sound has even found its way back to games – Anamanaguchi did the *Scott Pilgrim* game soundtrack, Chipzel provided music for *Super Hexagon* and Toriena contributed to *Team Sonic Racing*.

But while the hardware itself has had a considerable impact on our gaming culture, the Game Boy is like every other console in that the primary draw remains the games themselves. And the library manages to attract both old hands and new faces. Jeremy's *Game Boy Works* covers the Game Boy library in chronological order, and cultural significance is a big reason for the choice of platform. "Ever since Game Boy Color and Neo-Geo Pocket Color I've been a big fan of handheld gaming, and during the DS and the PSP's lifespan, I was a big advocate of those in the press. So I felt that maybe I should go back and look at the roots of portable gaming, the first major portable system to come out – and it still has so much heritage in gaming at this point," says Jeremy. But there's another factor that makes the library attractive too, and that's the fact that despite all the nostalgia, it still represents relatively fresh ground to cover. "There's not really that much coverage of Game Boy – even now, outside of the major titles ▶

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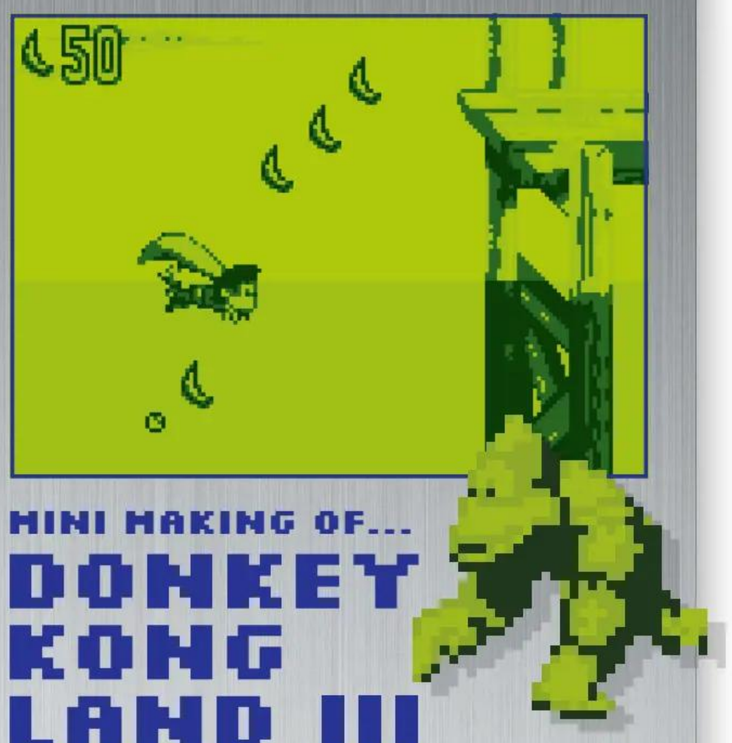


MINI MAKING OF...

DONKEY KONG LAND III

IAN MANDERS CODED THE THIRD AND FINEST DONKEY KONG LAND

How did you land the job of coding *Donkey Kong Land 3* for Rare?

I started at Rare in 1994 and my first project was the SNES game Ken Griffey Jr's *Winning Run*. After that finished in early 1996, I was assigned to work on *Donkey Kong Land 3*. It used the same engine that Rob Harrison wrote from the ground up for *Donkey Kong Land 2*, but with lots of new gameplay features, as well as new map screens and bonus games.

What were the main challenges you faced from a coding perspective?

It was a new platform, to me, so I had to get up to speed with a different CPU, and the tighter constraints of the Game Boy – slower speed, less memory and the small pages of the Game Boy cartridges. It was an interesting challenge, though, and the immediacy of working with portable platforms resonated with me. For most of my career since that point, I've developed software for portable games consoles and mobile phones.

The first two *Donkey Kong Land* games are quite close to their big brother SNES versions, whereas *Donkey Kong Land 3* does deviate from *Donkey Kong Country 3*. Was this a conscious decision?

We weren't given any significant directives one way or another and we were generally left to get on with it. Most attention at that time was paid to the Nintendo 64 games in development. We had the benefit of having a good starting point in the existing engine, so that gave us some breathing room to add some original elements.

The original Game Boy's monochrome screen wasn't amazing. Was there much you could do as a coder to improve clarity?

I think that was mostly in the hands of the artist. I don't remember having much influence over that. The artist, Keri Gunn, had lots of experience with creating great Game Boy graphics so it was in capable hands.

The first *Donkey Kong Land* on Game Boy reportedly sold in huge numbers. Were you privy to how well your sequel sold?

I remember hearing that *Donkey Kong Land 3* sold more than a million, which was great to hear for only the second game I'd worked on.

– so it seemed like something interesting to do," he points out. "It's been a journey of discovery, which is what I really wanted to do because I missed out on Game Boy for most of its life. This is the chance for me to go back and experience the things that I didn't get to experience when they were new."

» [SNES] The Game Boy's display is part of its character, but many players enjoyed colour solutions like the Super Game Boy.

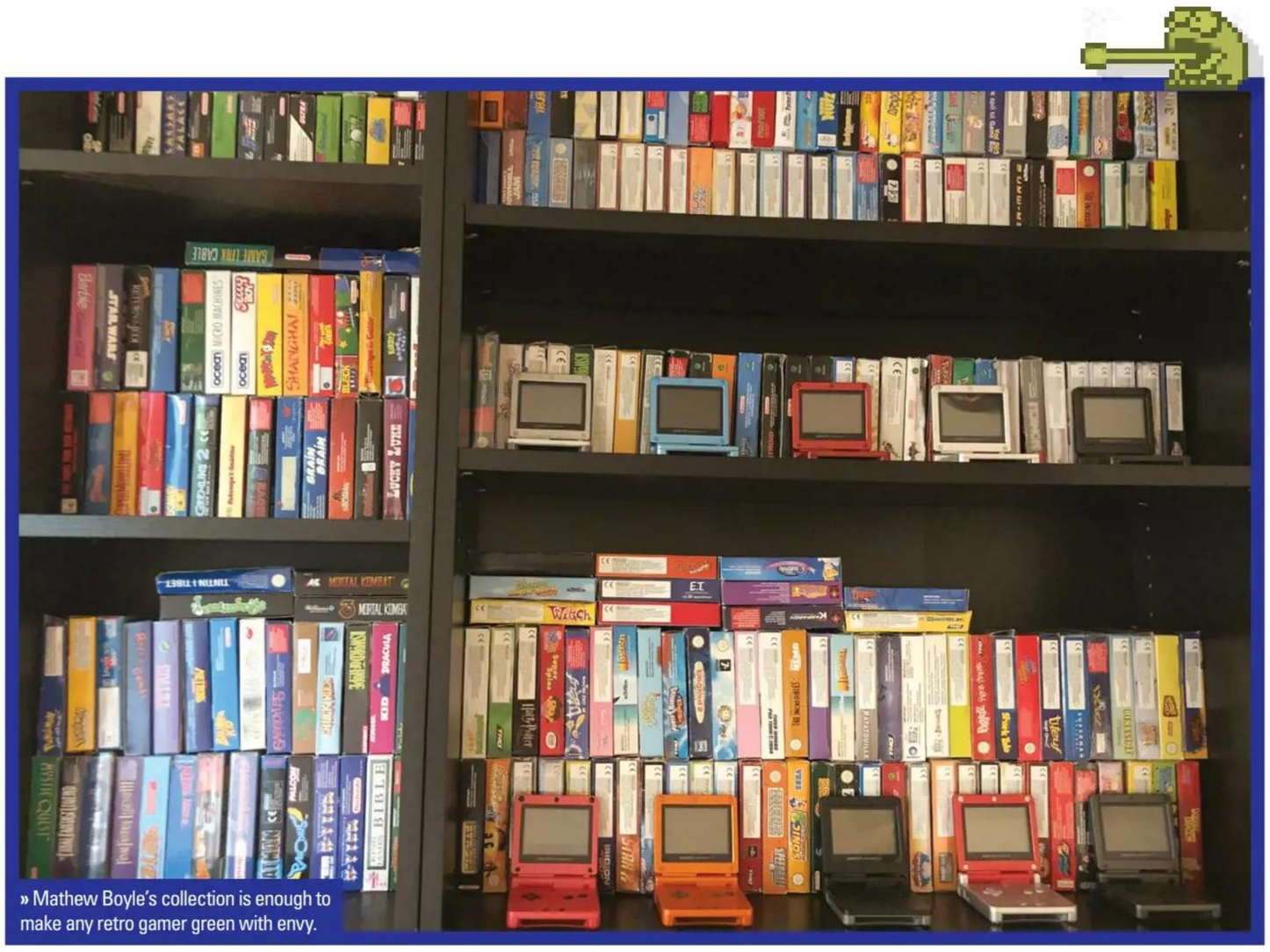
Going back and taking every release in turn has allowed Jeremy to gain insights on the system that he wouldn't necessarily have reached otherwise.

"It had a lot of puzzle games, which I didn't really realise at the time," he tells us. "When I would play puzzle action games like *Adventures Of Lolo* or *Toki Tori*, I was like, 'Wow, this is really novel' and now that I've spent a lot of time with the Game Boy library, I realise that these were really common and this was a huge genre, especially in Japan on early computers." Indeed, looking at the Japanese library is a gateway into a world of games that originated on the likes of the PC-88 and FM7, and plenty of other games made similar transitions. Since consumers expected simple, easy-to-grasp games on the Game Boy, developers used the console as a means of bringing classic games back to market. Arcade games like *Mr Do!*, *Heiankyo Alien* and *Donkey Kong* were revived on Game Boy, as were computer classics such as *Lode Runner*.

The project has also allowed Jeremy to discover plenty of new favourites. "*Mercenary Force* was a great one, it's kind of like a horizontal shooter but you're controlling a team of mercenaries in feudal Japan. *The Sword Of Hope* was developed by Kemco, and Kemco made its mark on the NES by taking the ICOM *MacVenture* games and converting them, and *The Sword Of Hope* takes that framework and combines it with a *Dragon Quest*-style RPG. It's really interesting and distinct. I also like *Balloon Fight* and it didn't really occur to me until I started this project that *Balloon Kid* was a sequel and follow up to *Balloon Fight*, so I really enjoyed that one." It's fascinating that even for a long-time games journalist with a notable interest in retro games, there's so much unexplored territory. "There have been quite a few games since I've started this project that have been pleasant surprises or genuinely great. I don't think the Game Boy gets its fair due, honestly," he tells us.

One of the long-term devotees of the system is Mathew, who graduated from *Kirby* to *Super Mario Land*, and later to RPGs like *Pokémon* and

» The Game Boy saw a lot of support from Nintendo, with big franchises making waves on the handheld console.



» Mathew Boyle's collection is enough to make any retro gamer green with envy.

"The games are very simplistic and there's a purity in that – devs couldn't rely on visuals"

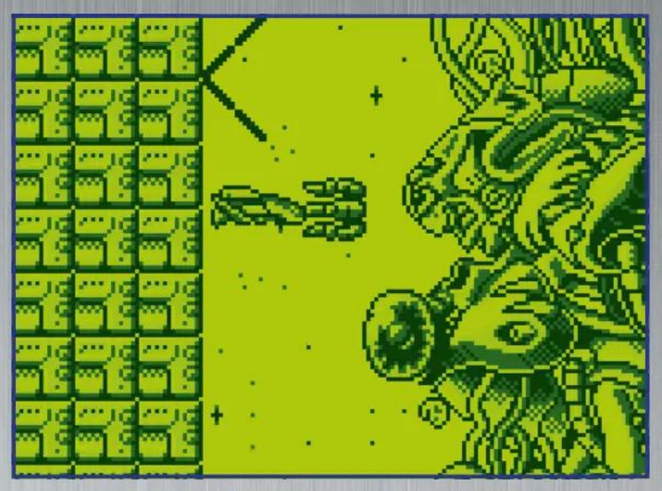
Mathew Boyle

Dragon Warrior Monster. "I've been collecting for the Game Boy since I was about 11," says the collector. "I used to go to car boot sales and local retro stores with friends at the weekends. To be honest, it pretty much happened by accident – as I grew up with the system and its successors, I ended up with a pretty solid base of games and discovered new ones via emulation. I started filling in the gaps because honestly it'd stretch the money I'd get from my paper round a little more than buying a SNES game. Unboxed carts were usually only a couple of pounds, so it was worth gambling on games with interesting labels!" Eventually, this casual collecting turned into a more focused effort. "It wasn't until I moved to Denmark that I decided to go for a full set," he explains. "I managed to get the full European set a few years back (467 carts) and then I mopped up the hundred or so US exclusives last year. I think I'm somewhere around 200 of the Japanese exclusives, so I've probably nearing the 800 carts mark if I haven't already!"

So what is it that keeps players coming back to the Game Boy library? "I think it's because the system's limitations made for great gameplay. The games are very simplistic and there's a purity in that – developers couldn't rely on visuals (or even colour), so it makes the experience all about play," Mathew replies. "I guess it also helps that the Game Boy came around at a time when games were in their infancy. Much like the indie games of today, a small team could make an experimental game with relatively little risk involved. I think it's a real testament to those studios, that you can hand an [original Game Boy] and some games to a six-year-old and they'll still have fun playing them!"

The Game Boy was never Nintendo's flagship product, yet there's a case to be made that it had the biggest impact of any of the company's hardware ventures. After all, what became of the adults who got hooked on their kids' copies of *Tetris*? They're the bedrock of today's casual gaming market, and they're probably still playing *Tetris* on their mobile phones. What became of *Pokémon*? It's still the biggest entertainment franchise in the world. What became of handheld consoles? They were established as viable alternatives to home devices, and Nintendo has been the driving force in their evolution. The company enjoys a similarly commanding position in that market now – even though the Game Boy line has been inactive for over a decade, the Nintendo DS line went on to even greater sales and the Switch is more or less unopposed today.

Because of that impact, we're still in love with the system today. You can see that in the people who still cherish the collections they amassed when growing up, as well as those who are discovering the library today. You see it in the Game Boy kids that have grown up and are now bringing the console's distinct style into their own projects – a style that exists purely because of the choices Nintendo made in service of creating a viable handheld console. If there's a lesson to be learned, it's that the best hardware will turn heads in the moment, but the best hardware for the job will create a lasting legacy. ✱



» [Game Boy] The Game Boy editions of *R-Type* are impressive, and well worth picking up.

MINI MAKING OF...

R-TYPE DX

***BOB PAPE** RECALLS THE BUMPER R-TYPE PACKAGE THAT DELIGHTED ALL GAME BOY OWNERS*

Did having the ZX Spectrum version of *R-Type* on your CV help you get the Game Boy *R-Type II* gig?

Well the original *R-Type* for the Game Boy was converted by Jas Austin but he was busy on another game, while I was free and had the experience of coding the Spectrum version. I don't know if it had been offered to anyone else, but for my self-confidence I'd like to think my name was somewhere near the top of the list!

The pair of you later updated your *R-Type* games for *R-Type DX* on the Game Boy Color. What was the impetus there?

It was a quick money-spinner. The *DX* versions replaced the mono sprites and backgrounds with colour versions and I also added a brand-new backdrop to the third stage of *R-Type II*. We found out that it was very easy to convert an existing four-colour Game Boy game to a full(ish) colour one, so much so that perhaps the console should have been called the Game Boy Color-ised.

Besides the colour versions, *R-Type DX* also included the original mono games that could be enjoyed on both Game Boy and Game Boy Color. How did that work?

I had to add a piece of code to the mono Game Boy versions that checked if it was running on a Game Boy Color. If it was, then it set the first four colours of the Game Boy Color palette to an approximation of the Game Boy, with a slight yellow tinge. Disregarding the differences in colour, the Game Boy Color versions are pretty much identical to the originals. Nintendo did ask for some minor tweaks, such as asking for the level one boss to be made harder to kill.

***R-Type DX* includes a cryptic message on the end credits: 'For Arch Stanton, The World Is Yours?' Was this down to you?**

Yes, that's another of my little messages at the end. Arch Stanton plays a key part in the finale of *The Good, The Bad And The Ugly*, while 'The World Is Yours' is the motif that drives the protagonists of both versions of *Scarface*.

retro GAMER READERS' CHOICE

TOP 25 GAME BOY GAMES

Your votes have been counted and the standings are final – these are the very best games for Nintendo's monochrome masterpiece, as chosen by Retro Gamer readers

25 MEGA MAN II

■ **DEVELOPER:** BIOX
■ **YEAR:** 1991 ■ **GENRE:** SPORTS

In a surprising opening to our list, series creator Keiji Inafune's least favourite of the Game Boy *Mega Man* games proves to be your favourite. The regular handheld developer for the series took a back seat for this release, resulting in a game which felt different from the rest of the Game Boy titles. The game combines elements of the second and third NES *Mega Man* games, but thankfully for new players, the difficulty was lowered.

24 MYSTIC QUEST

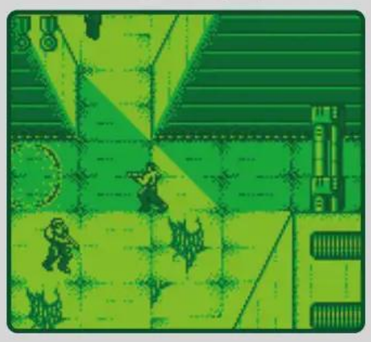
■ **DEVELOPER:** SQUARE
■ **YEAR:** 1991 ■ **GENRE:** ACTION-RPG

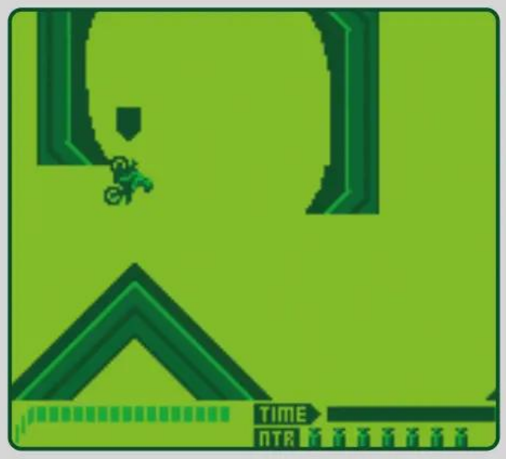
While it was known as *Final Fantasy Adventure* outside of Europe, *Mystic Quest* is only loosely based on Square's classic series, ditching many of the *Final Fantasy* traditions such as multi-character parties and turn-based combat. Instead, *Mystic Quest* is a great little action-RPG in which your goal is to stop the Mana Tree from falling under the control of the Dark Lord of Glaive. Today, the game is best known for being the precursor to the SNES classic *Secret Of Mana*, which led to a Game Boy Advance remake titled *Sword Of Mana* in 2003 and a 3D re-imagining in 2017.

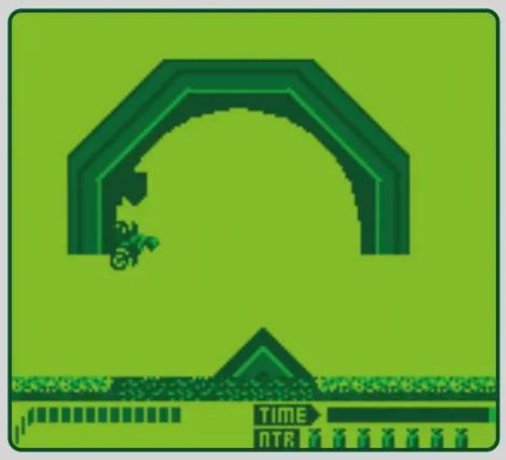
23 PROBOTECTOR

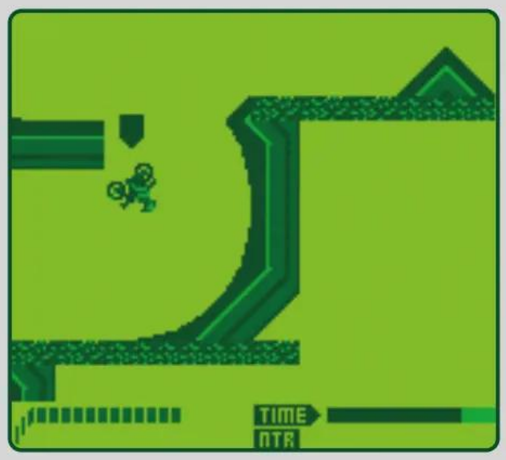
■ **DEVELOPER:** KONAMI
■ **YEAR:** 1991 ■ **GENRE:** RUN-AND-GUN

Known as *Operation C* in North America, *Probotector* fans can't have been disappointed by this fantastic portable outing, which retains the frantic action of the series' arcade and console outings. Alternating between side-scrolling and top-down sections as in *Super Contra*, the blasting is hugely enjoyable in both views. Unsurprisingly, given the game's heritage, it's also a real challenge. One of the Game Boy's best available blasters.









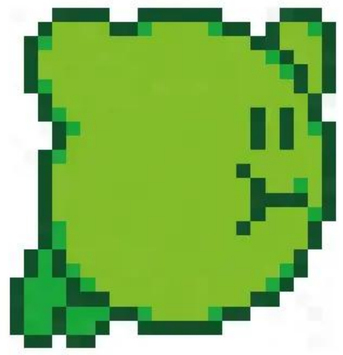
MOTOCROSS MANIACS

DEVELOPER: KONAMI

YEAR: 1989 **GENRE:** RACING/PLATFORMER

22 *Motocross Maniacs* might not have the best visuals on the system, but it's a blast to play. Combining the motocross gameplay of titles such as *Kikstart* with platform stages, *Motocross Maniacs* presents players with a variety of hills, loops and ramps, requiring excellent balancing and judicious use of nitro to conquer, as well as collection of the T tokens that refill your time bar. Once you've managed to clear stages, beating your best times is the challenge. It's a simple formula, but the fantastic stage design makes it a joy to replay.

As an interesting aside, *Motocross Maniacs* eventually resurfaced on the compilation cartridge *Konami GB Collection Vol 3*, under the new name *Bikers*. It's easy to miss due to this bizarre decision, so if you're looking for a copy you'd do well to keep an eye out for this release too – it's got the Game Boy Color branding, but will still work on monochrome systems.

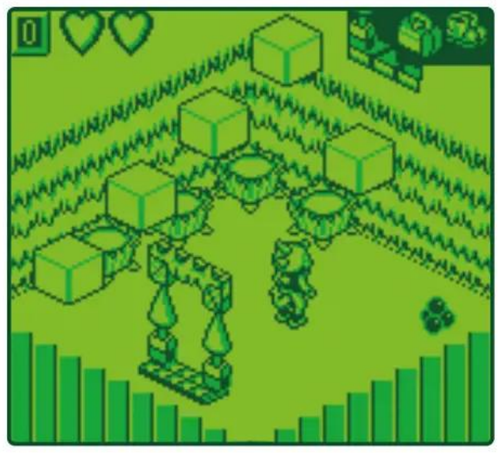


MONSTER MAX

DEVELOPER: RARE

YEAR: 1994 **GENRE:** ISOMETRIC ADVENTURE

21 It doesn't enjoy the popularity of *Head Over Heels*, but Jon Ritman's isometric Game Boy adventure is one of your favourite games on the system regardless. *Monster Max* sees the titular protagonist seeking to stop the villainous Krond from banning all music. Taking cues from the 8-bit classic, the game sees Max venturing through a mammoth 29 stages, each filled with platforming and puzzle elements as well as a variety enemies to avoid.



Monster Max received excellent reviews, but publishing problems caused the game to be delayed for a long time, allowing excitement to dissipate. Its release during the system's mid-Nineties slump also hurt, causing sales to fall below expectations and leaving the game as an oft-forgotten classic. We can't help but feel it would have done better in the voting if it had been released during one of the system's boom periods.

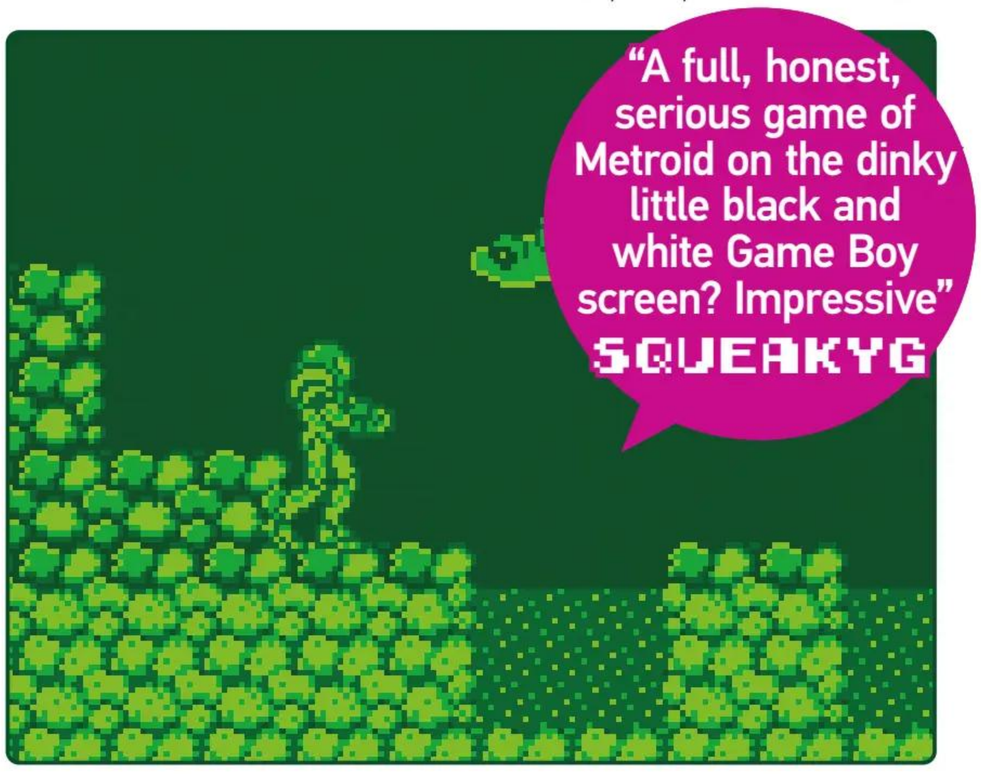
METROID II: RETURN OF SAMUS

DEVELOPER: NINTENDO

YEAR: 1994 **GENRE:** ACTION-ADVENTURE

20 While *Metroid II* had divided fans over the years, Samus Aran's second adventure garnered enough love from the voters to appear in your top 25. The game takes the traditional *Metroid* approach to game design, with a very large stage in place of multiple smaller ones. Your goal is to locate and destroy Metroid creatures, with a detector tracking the number remaining in the bottom-right of the screen. Unlike in other *Metroid* releases, destroying Metroids progressively opens up new sections, allowing for further exploration.

While the game doesn't utilise *Metroid*'s usual trick of providing natural barriers to progress by utilising a series of progressive upgrades, which puts some fans off, the game actually features a number of improvements over the NES original that would become standard. Samus is now able to crouch and fire, and power-ups such as the spider ball would later return in the *Metroid Prime* series. *Metroid II* boasts some large, detailed sprites too – Samus is absolutely huge! However, while some appreciate the design, others find it makes the game feel rather too cramped. There's still a lot to like about *Metroid II*, so revisit it some time… or pick up the 3DS remake.



DUCKTALES

DEVELOPER: CAPCOM

YEAR: 1990 **GENRE:** PLATFORMER

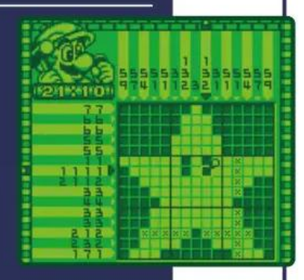
19 Scrooge McDuck's star turn remains one of the better licensed platformers out there, thanks to Capcom's wise decision to redesign the stages of the NES game to fit the Game Boy's smaller screen.

MARIO'S PICROSS

DEVELOPER: JUPITER

YEAR: 1990 **GENRE:** PUZZLE

18 Cross-referencing the number of marks in a line to make a picture is the goal of this tricky puzzler. The 30-minute timer doesn't appear threatening at first, but quickly becomes a worry as mistakes chip away the minutes.

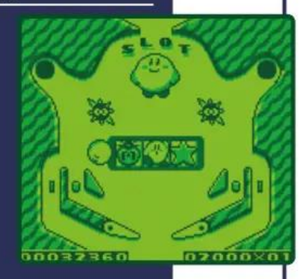


KIRBY'S DREAM LAND

DEVELOPER: HAL LABORATORY

YEAR: 1992 **GENRE:** PLATFORMER

17 Kirby's debut might have been a little on the easy side, but the polished platforming and impressive visuals mean that it's fondly remembered by the **Retro Gamer** readership, getting the nod over its 1995 sequel.



GOLF

DEVELOPER: NINTENDO

YEAR: 1989 **GENRE:** SPORTS

16 *Golf* doesn't try to do anything particularly fancy, sticking to a top-down view of two 18-hole courses. The game is comprehensive all the same, featuring hazards, a range of clubs and a putting green with slope physics.

KIRBY'S PINBALL LAND

DEVELOPER: HAL LABORATORY

YEAR: 1993 **GENRE:** PINBALL

15 Are **RG** readers really into pinball, or was HAL Laboratory just really good at making pinball games? *Kirby's Pinball Land* includes three tables, expanding on the template set by *Revenge Of The 'Gator*.

BATMAN

DEVELOPER: SUNSOFT

YEAR: 1990 **GENRE:** PLATFORMER

14 Sunsoft's Batman sprite might be the most minimalist representation of the character yet seen, but the game was packed with action. Released in the wake of the blockbuster film starring Michael Keaton, this platformer is your favourite movie licence on the Game Boy.

The action sees the caped crusader traversing stages while shooting enemies with a variety of weapons, including batarangs, before going one-on-one with a boss at the end of the stage. As is often the case with great licensed games, *Batman* injects some variety by switching genres, with shoot-'em-up action also included. There's nothing hugely innovative about *Batman*, but it's a game which succeeds as a representation of its source material and a very solid, well-designed platform game.

"Simply amazingly playable! And that music!" DUMPSTER

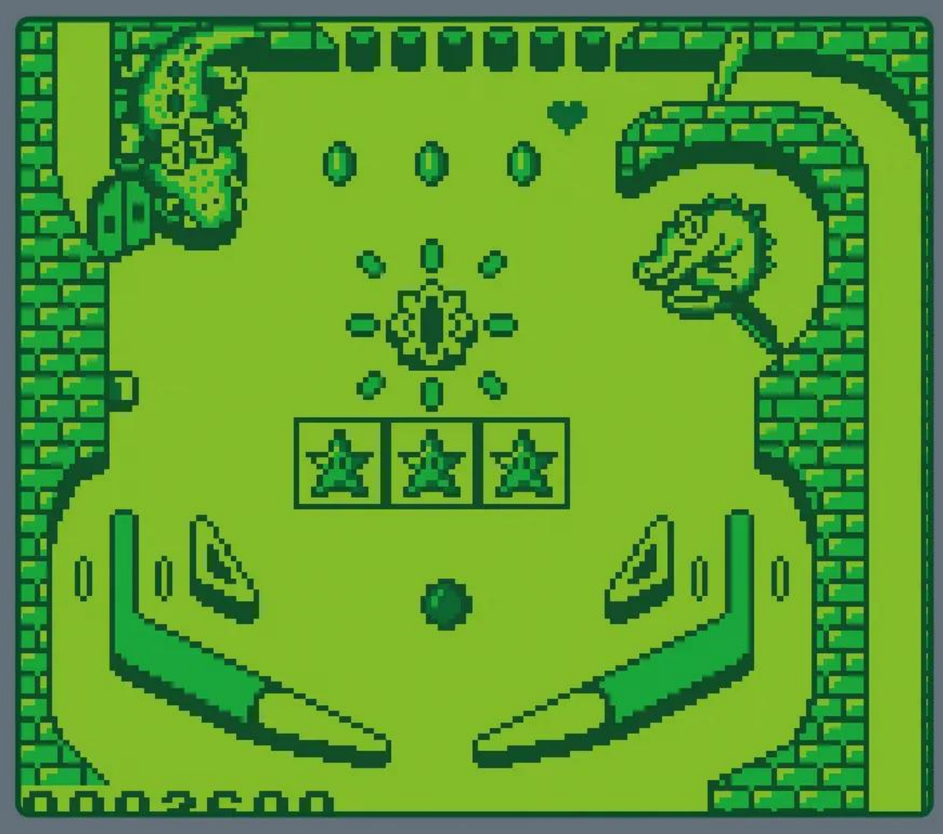
REVENGE OF THE 'GATOR

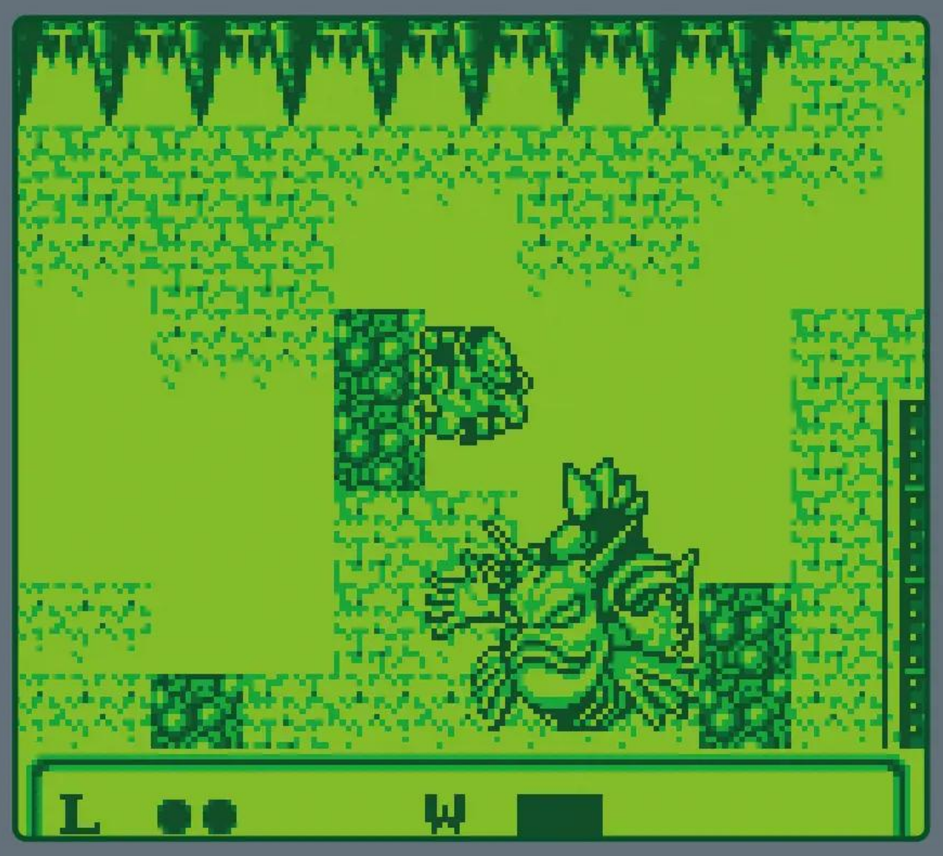
DEVELOPER: HAL LABORATORY

YEAR: 1989 **GENRE:** PINBALL

12 HAL Laboratory's first Game Boy pinball game stirs fond memories for **Retro Gamer** readers, beating the developer's later release *Kirby's Pinball Land* in the voting. It's not hard to see why you love it – it isn't just a great Game Boy game, but a fantastic pinball game which stands tall amongst home console contemporaries such as *Alien Crush*.

Wisely adopting a flick-screen format to avoid the blurring that could cause problems in Game Boy titles, the game features just a single table split across four screens. It's excellently designed though – like the other great videogame pinball tables, it takes advantage of the format by including features that are impractical and impossible on a real table, including the three bonus stages that take place on extra screens. Charming visuals round off the package, with the dancing 'gators giving the game a memorable identity.





GARGOYLE'S QUEST

DEVELOPER: CAPCOM

YEAR: 1990 **GENRE:** PLATFORMER

13 As a spin-off of the *Ghosts 'N Goblins* series, *Gargoyle's Quest* sees you taking on the role of one of the game's most irritating enemies. You play as Firebrand, a gargoyle who is fated to defeat the evil king of the land to restore peace – a goal you faintly wish he could have kept for the main series.

The platforming action in *Gargoyle's Quest* is very polished, with interesting stage design that takes full advantage of the gargoyle's natural affinity for walls. Firebrand can stick to them, allowing him to climb up passages and avoid hazards. He's also got the ability to fly for limited periods, easing tricky jumps. Those abilities are thoroughly necessary though, as the difficulty of the main series returns in full effect. *Gargoyle's Quest* is definitely a challenge, but it remains a thoroughly enjoyable one.

"Mole Mania's friendly exterior conceals a devilish nature, as its difficulty quickly escalates"

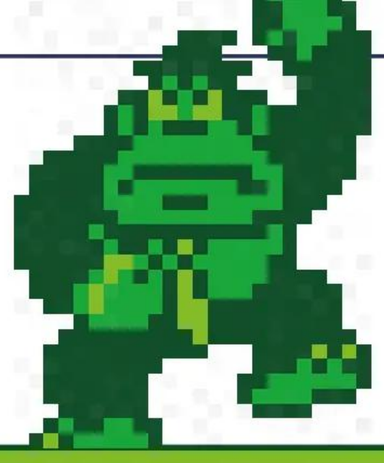
SUPER RC PRO-AM

DEVELOPER: RARE

YEAR: 1991 **GENRE:** RACING

11 *Super RC Pro-Am* would be great fun on any system, but luckily enough the isometric perspective is perfectly suited to the Game Boy. While it was already present in the enjoyable NES original, this viewpoint goes a long way toward mitigating the problems that the Game Boy's blur-prone screen can cause for racing releases in general. This suitability for the hardware allowed the game to surpass classic multiplayer racers such as *Micro Machines* in the voting, as they simply weren't adapted to the hardware as well.

Super RC Pro-Am brings the fun of radio-controlled racing to the Game Boy. Each track sees you taking on three CPU opponents, with victory determined as much by your ability to manage the hazards of the track as by your cornering skill, thanks to the oil patches, speed-up pads and weaponry strewn across the game's 24 courses. One of the game's most notable features is its multiplayer. Not only does it support two-player via the link cable, it also supports the Four Player Adapter, a perfect addition.



MOLE MANIA

■ **DEVELOPER:** PAX SOFTNICA

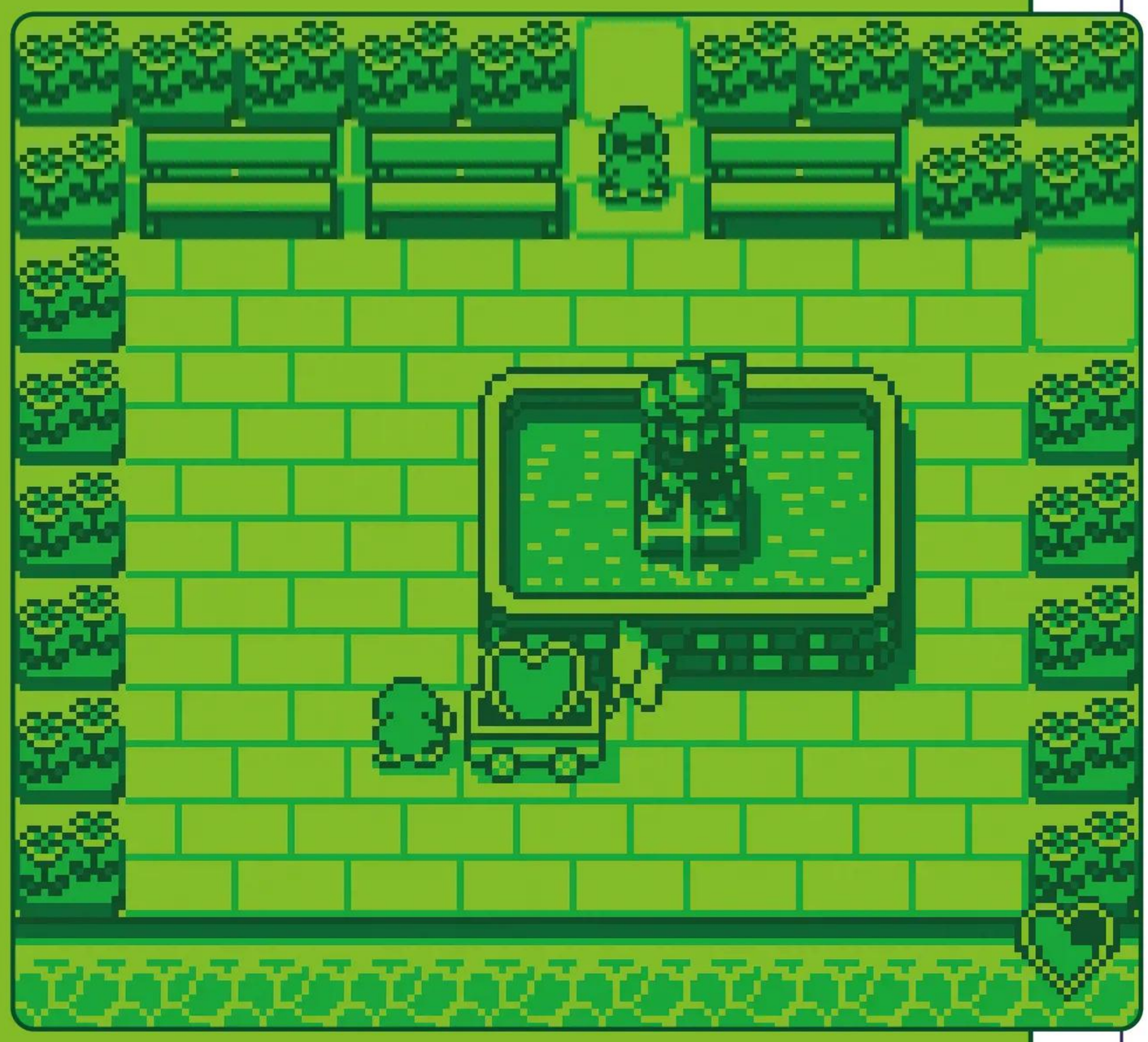
■ **YEAR:** 1996 ■ **GENRE:** PUZZLE

10 Having arrived during the mid-Nineties, a relatively quiet period for the Game Boy, *Mole Mania* had the potential to become one of the Game Boy's forgotten classics. Indeed, it's one of the most frequently overlooked games to have benefited from the involvement of Shigeru Miyamoto. Thankfully our readers tend to stick by their systems, resulting in *Mole Mania*'s appearance in the top ten – an accolade it thoroughly deserves.

Your hero is Muddy, a mole who is trying to rescue his wife and children, who have been kidnapped by the local farmer. For the player, this means making your way through a series of top-down puzzle stages, eating cabbage to keep your strength up while avoiding enemies. If your route is blocked on the surface, Muddy can dig underground to open up whole new routes. But digging can cause problems, as certain surface obstacles can't pass the holes created in the process. At the end of each stage, Muddy faces off against a boss in order to rescue a relative.

The game's friendly exterior conceals a devilish nature, as its difficulty quickly escalates. Thankfully, the design makes it rather hard to put down. The wide variety of obstacles keeps the game interesting, and the game caters to completists by scoring the performance on each stage out of 100. The game even features multiplayer for those of you lucky enough to have a friend that also owns the game. This mode allows the second player to take control of the farmer, attempting to whack Muddy as he attempts to steal cabbage.

While Nintendo made the game available via the 3DS Virtual Console service for those that missed it the first time around, we have yet to see it surface again. We'd love to see *Mole Mania* revived for modern systems with perhaps Miyamoto returning to one of his hidden gems. How about it, Nintendo?

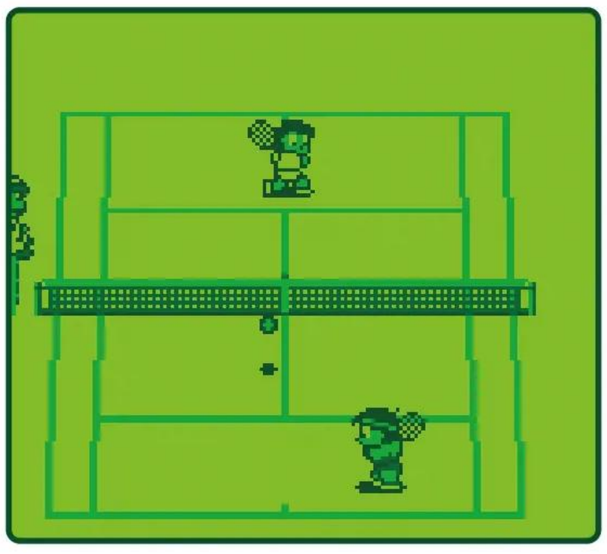


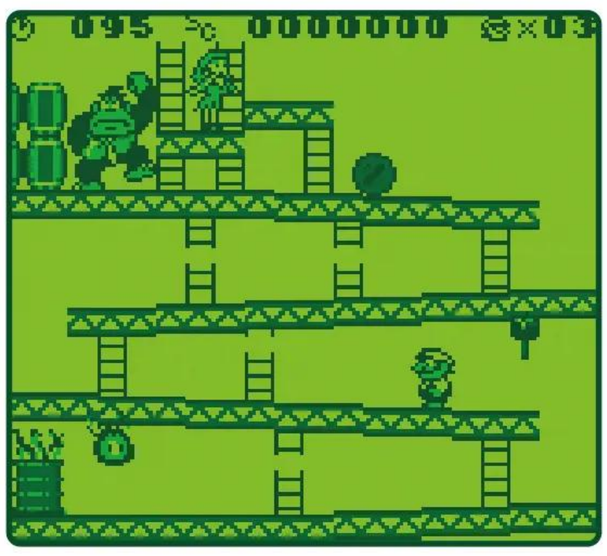
TENNIS

■ **DEVELOPER:** NINTENDO

■ **YEAR:** 1989 ■ **GENRE:** SPORTS

9 As one of the Game Boy's earliest releases, *Tennis* reached a wide range of players over the years, helping it to ride high in the voting. It's a simple but fun game of tennis, featuring a good implementation of the rules and a full range of shots. While the game doesn't include much in the way of structure, with even a basic tournament mode omitted, the challenging CPU opponents help to pass the time on long journeys and the link cable multiplayer added some welcome longevity. The inclusion of Mario as umpire added some personality to proceedings, greatly boosting the game's memorability.





DONKEY KONG

■ **DEVELOPER:** NINTENDO

■ **YEAR:** 1994 ■ **GENRE:** PLATFORMER

8 This impressive re-imagining of *Donkey Kong* starts off simple, with the first four stages taken from the arcade game, leading many to believe it's nothing more than an impressive port of the original arcade game. Nintendo plays a trump card, however, when the single-screen stages give way as the game turns into a completely different beast. Dozens of puzzle platforming stages await Mario, who needs to find keys to exit each stage. The game also features some great boss encounters with Donkey Kong himself, often returning to the style of the original game. It's also fully compatible with the Super Game Boy.

DOUBLE DRAGON

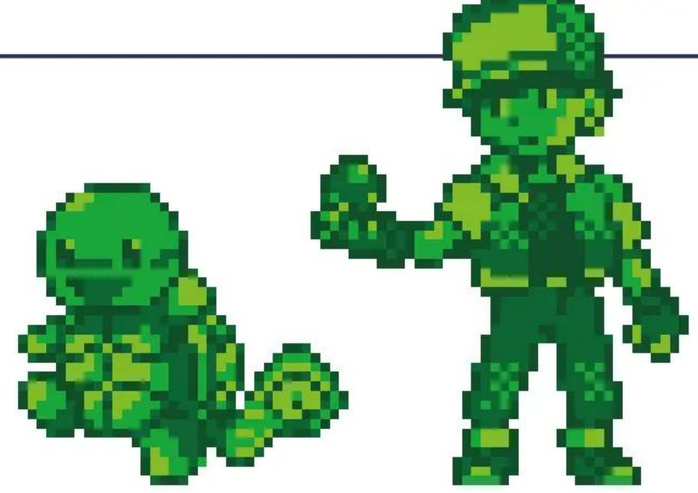
■ **DEVELOPER:** TECHNOS

■ **YEAR:** 1990 ■ **GENRE:** BEAT-'EM-UP

7 As a technically limited machine with a monochrome display, the Game Boy never had an easy time of arcade conversions. With *Double Dragon*, Technos went for the most sensible approach – tailoring the game to the hardware, rather than pushing the hardware to accommodate the game. Built from the ground up for the Game Boy, *Double Dragon* captured the spirit of the arcade game excellently, creating a fun little brawler in the process.

Stages, enemies and weaponry are all instantly recognisable from the original, but have been retooled for the small screen, something that works extremely well. The first stage of the Game Boy game takes elements from the first two stages of the arcade original, and begins to deviate more heavily from the second stage onwards as platforming elements are introduced. Only the inclusion of link cable co-op could have seen this excellent conversion climb higher.

"I'm still playing it some 24 years later. Love it!"
COMBO BREAKER



WARIO LAND: SUPER MARIO LAND 3

■ **DEVELOPER:** NINTENDO
■ **YEAR:** 1993 ■ **GENRE:** PLATFORMER

5 Wario's own platformer pipped his villainous debut to make your top five. More than a mere spin-off, Nintendo showed its confidence in the quality of *Wario Land* by giving it the *Super Mario Land 3* title. Reflecting his origins as the bad guy, Wario is out to collect as much cash as possible to buy a castle. The contrast is plain to see in play, too – Mario lightly hops on the heads of his enemies, whereas Wario rams into them with a shoulder barge. Overall, an excellent platform adventure that turned a one-shot villain into a star.

SUPER MARIO LAND 2: 6 GOLDEN COINS

■ **DEVELOPER:** NINTENDO
■ **YEAR:** 1993 ■ **GENRE:** PLATFORMER

6 *Super Mario Land 2* was an impressive technical showcase, highlighting how far Game Boy development had come since 1989. Where the original game featured very basic visuals, a massively increased cartridge capacity allowed *Super Mario Land 2* to feature much more detailed visuals. And while *Super Mario Land* had a linear progression, the sequel allowed players to tackle its six worlds in any order before taking on the game's villain, the debuting Wario.

While it places highly, *Super Mario Land 2* failed to best its predecessor in the voting. Players were divided by the differences, with some favouring the improved visuals of the second game and others preferring the more challenging gameplay of the first.

POKÉMON RED AND BLUE

■ **DEVELOPER:** GAME FREAK
■ **YEAR:** 1996 ■ **GENRE:** RPG

4 *Pokémon*'s design legacy stretches back to the early life of the Game Boy, with Satoshi Tajiri's first concept documents dating back to 1990, but it didn't arrive until 1996 – and gamers outside of Japan had to wait even longer. But the timing worked out for Nintendo. While the meat of the game was of a high quality, players worldwide dusted off their hardware for the multiplayer features. With each version boasting exclusive monsters, the full collection of 151 Pokémon can only be obtained by trading with other players, making *Pokémon* the best reason to own a link cable.

SUPER MARIO LAND

■ **DEVELOPER:** NINTENDO
■ **YEAR:** 1989 ■ **GENRE:** PLATFORMER

3 It might be visually simple, but you chose the original *Super Mario Land* over the sequel – and it wasn't close. Mario's Game Boy debut contains the classic gameplay we've come to expect from the plumber's platform outings, but as the only entry in the *Mario* series directed by Satoru Okada, the game has some distinctive features that set it apart from other *Mario* games. Fireballs can be used to collect coins that lie out of Mario's reach, a fact taken into account by level designers, while distinctive enemies such as sphinxes and robots help the game to stick in the memory.

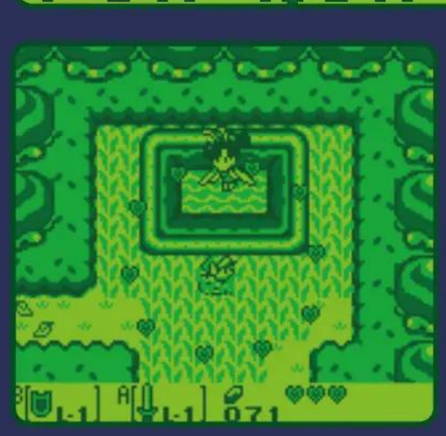
"Has there ever been a game that demonstrated so starkly that pretty graphics are always secondary to playability?"
MR PICKLE

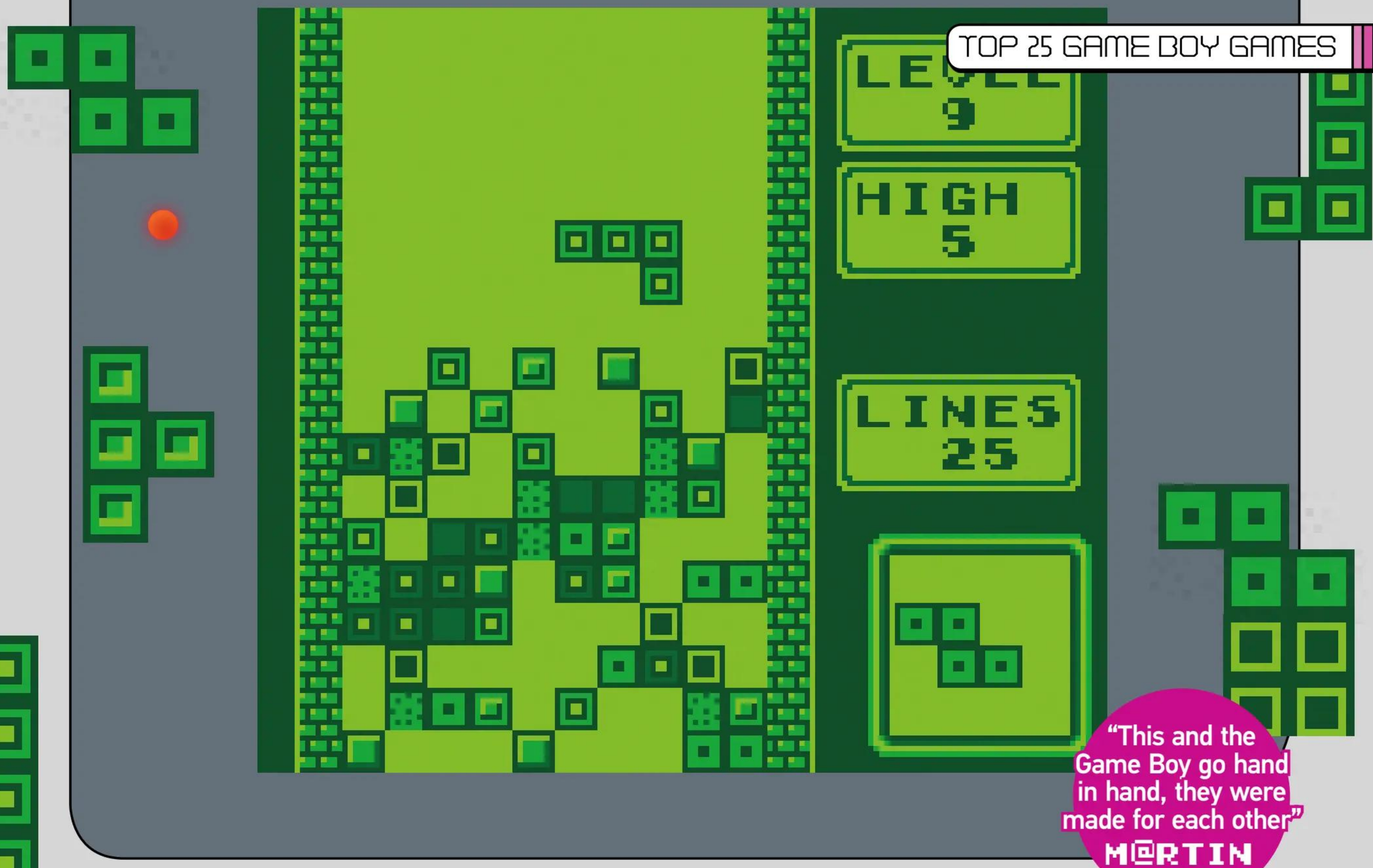
THE LEGEND OF ZELDA: LINK'S AWAKENING

■ **DEVELOPER:** NINTENDO
■ **YEAR:** 1993 ■ **GENRE:** ACTION-RPG

2 Far ahead of the rest of the field and running the winner close, *Link's Awakening* reaches second place. It's not hard to see why – the game is absolutely fantastic, successfully capturing the sense of adventure that we expect from the series. The large world and top-down monster slashing, the solid foundations on which 2D *Zelda* games are built, are both intact. However, it is the strength of storytelling that resonated with players, leaving a long-lasting impression.

Much like *Mystic Quest* earlier in this list, *Link's Awakening* plays around with series conventions by removing Link from his normal Hyrule surroundings. There's no Triforce and even the titular princess is missing, as this classic adventure puts the hero on Koholint Island, where he seeks to wake the Wind Fish. While the characters you'll encounter are often funny, the tale eventually ends on a memorable, bittersweet note.





"This and the Game Boy go hand in hand, they were made for each other"
MARTIN

TETRIS

■ **DEVELOPER:** BULLET-PROOF SOFTWARE ■ **YEAR:** 1989 ■ **GENRE:** PUZZLE

Come on now – did you really think it was going to be anything else? *Tetris* was an absolute phenomenon, selling over 30 million copies and single-handedly ensuring the Game Boy's success over its numerous handheld competitors. While the Game Boy version wasn't the original, the perfect combination of software and hardware ensures that it remains the most fondly remembered.

The genius of *Tetris* is its simplicity – the game can be explained to a newcomer in a matter of seconds. Bricks fall from the top of the screen, you use them to build a wall, and completed rows disappear. The more rows you clear at once, the higher you'll score. The challenge of the game lies in keeping a single session going for as long as possible, with the constantly increasing speed of the game ensuring that you can't last forever. But you always feel you could have done better, so you try again. And again. And a few more times. As 'one more go' becomes the most-used phrase in your vocabulary, you realise that you're attention has been sucked into the game. And that's before you even consider the equally compelling multiplayer mode.

Nintendo shrewdly made *Tetris* the official pack-in game for North America and Europe, with the universal appeal of the software driving sales of the hardware and making the game the best-selling Game Boy title in the process. Even *Pokémon* a decade later couldn't topple the success of *Tetris*.

While *Tetris* is simple and the conversion process relatively uncomplicated, actually getting the rights was famously challenging. While the Cold War was nearing its end, the Soviet Union was still massively suspicious of outsiders – particularly westerners – and the unannounced arrival of Henk Rogers was no small matter. Finding the right people was not only problematic, but caused major problems for those contacted as they came under suspicion of having contact from the west.

The eventual licensing negotiations were conducted with a constant KGB presence, but introduced Henk to *Tetris* designer Alexey Pajitnov, who would receive little financial benefit from the success of the Game Boy release as the copyright belonged to the state, preventing him from claiming any royalties. The two would eventually go into business together when Alexey regained the rights in 1996, forming The Tetris Company.

Tetris is great no matter what you play it on, but the Game Boy version has always felt like the perfect marriage of software and form factor. The game is suitable for quick sessions and is one you'll constantly want to return to, so a version that you are able to take anywhere is clearly going to be awesome – and that's why it's your favourite Game Boy game.

FIVE REASONS WHY IT'S GREAT

- The simple gameplay of *Tetris* gives it universal appeal, which is unmatched by any other game
- *Tetris* saves you money – by being ridiculously addictive, it reduces the amount of time you have for other games
- You can always carry a copy of *Tetris*, thanks to the Game Boy's portable nature
- The rocket launch that follows a high-scoring session is one of the greatest pats on the back in gaming
- The Game Boy's rendition of Russian folk song *Korobeiniki* leaves an indelible imprint on your brain

Mega Duck

» **MANUFACTURER:** Welback Holdings » **YEAR:** 1993
» **COST:** fl 129 (launch), £200 (today, unboxed)

When Hong Kong-based Welback Holdings decided to enter the handheld gaming market, the company was clearly inspired by a rather popular handheld console that already existed – and you'll win no prizes for guessing which one.

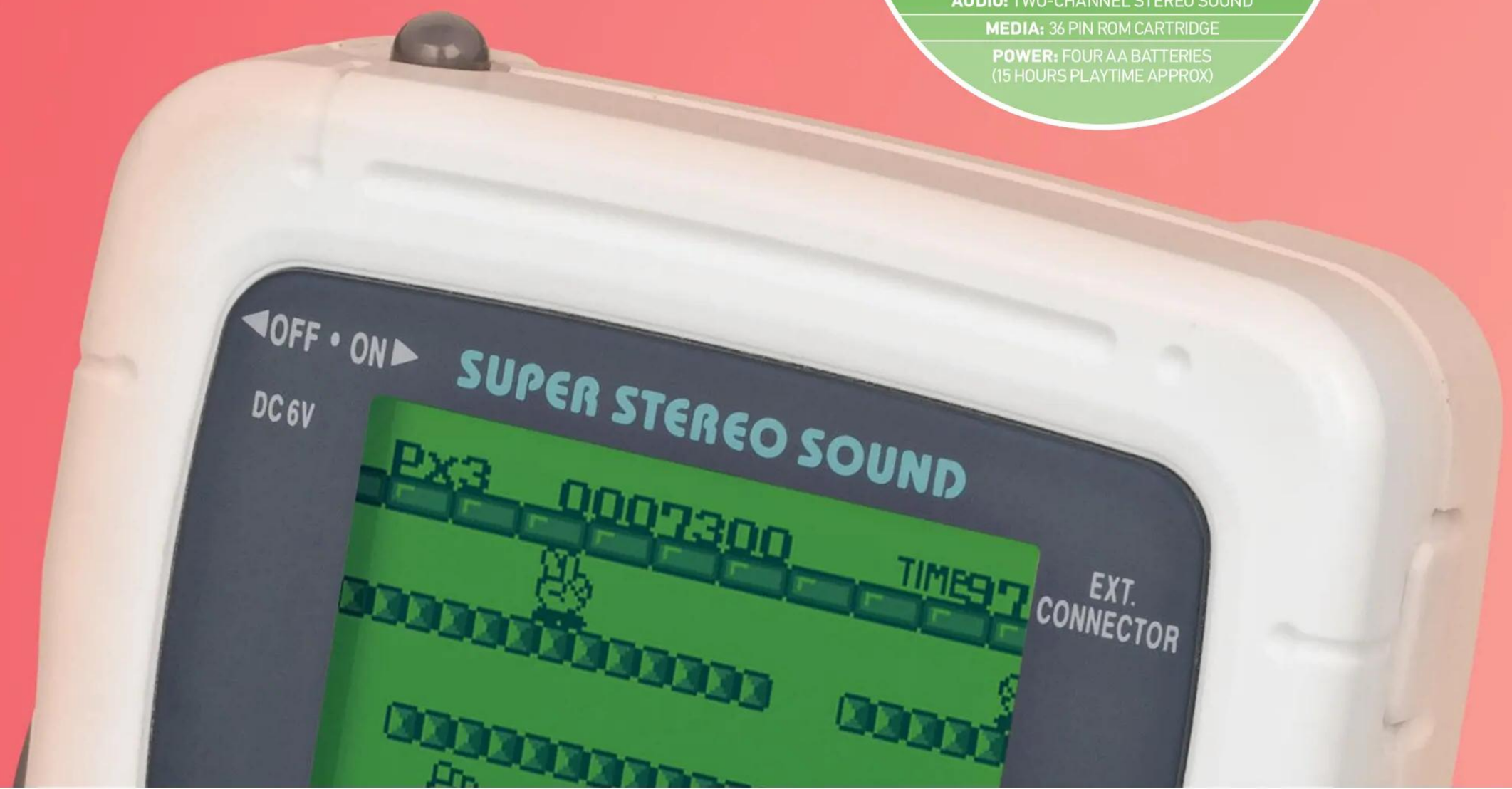
Never mind the exterior design with its identical control configuration and extraordinarily similar display – the Mega Duck is surprisingly similar to the Game Boy on a technical level, too, to the point that some of its games were later ported over pretty directly as unlicensed releases. Additionally, a six-pin expansion port was available for multiplayer action on the games that supported it.

A number of different companies marketed the system under the Mega Duck name in continental Europe, including Creatronic, Videojet and Hartung. In Brazil, the system was known as the Cougar Boy, with the same games as the Mega Duck. Ultimately, the hardware failed to significantly undercut the price of Nintendo's machine, and without the marketing budget or brand power to compete directly, the Mega Duck did not last long in the marketplace. Just 24 known cartridge releases exist. However, the hardware didn't disappear entirely, as Welback Holdings soon pivoted to take on Vtech in the educational toy market – not that this went a great deal better. ✱

Mega Duck fact

■ Except for *The Brick Wall* by Timlex International, all games for the Mega Duck were developed by the Taiwanese developer Thin Chen Enterprise, under the Sachen and Commin brand names.

PROCESSOR: 8-BIT SHARP LR35902 CPU (4.19 MHZ)
RAM: 16KB RAM
GRAPHICS: 2.7-INCH 160X144 DISPLAY, FOUR SHADE GREYSCALE
AUDIO: TWO-CHANNEL STEREO SOUND
MEDIA: 36 PIN ROM CARTRIDGE
POWER: FOUR AA BATTERIES (15 HOURS PLAYTIME APPROX)

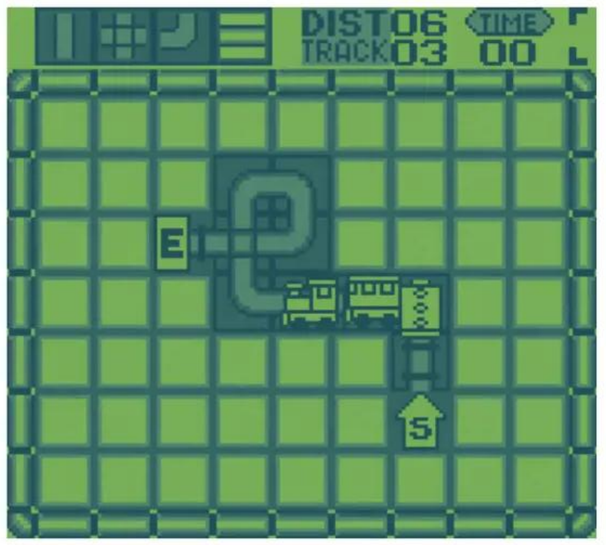


CONTRAST
BATTERY
VOL.
HIGH RESOLUTION DOT MATRIX LCD
B
A
Mega Duck™
SELECT
START
PHONES

SYSTEM SUPPLIED BY
EVAN AMOS

ESSENTIAL GAME
Railway

This puzzler has quite a lot in common with the old *Pipe Mania* puzzle design. Your job is to use a random selection of track pieces to lay a complete line between preset start and end points – fail to connect them, and the train will crash. You'll gain points for quick track completion and lose them for wasting pieces. As play goes on, obstacles begin to appear that you'll need to build around, and minimum track length requirements start to complicate your designs. It's not the most original game, but it's a good take on an established template.



RETROINSPECTION

ATARI LYNX

A full-colour screen, 16-bit technology and awesome games. Epyx thought Nintendo would jump at the chance of snapping up 'The Handy', its fledgling handheld console. But as David Crookes reveals, Epyx was in for a bit of shock...

"Grab your suit and passport." Dave Needle looks up. It's three o'clock in the afternoon and standing in his office is David Morse, the CEO of Epyx, with an urgent look on his face. "I need you to join me on a flight to Japan. The plane leaves in three hours." Dave Needle glances at his watch and then dashes home. Uncertain of exactly what is happening, he nevertheless grabs his best suit, takes his passport from his drawer and hurries to the San Francisco airport.

Morse and Epyx board member Joe Horowitz are waiting for him. They board the plane, making their way to the upper deck of the half-empty jumbo jet heading for the Land Of The Rising Sun. As the plane takes off, Morse begins to explain what's happening. A private meeting has been set up with Nintendo luminary Shigeru Miyamoto, with one simple goal: selling the 'Handy'. The handheld console that Needle and colleague RJ Mical have been working on needs to be sold. Epyx doesn't have the available finances to take the product to market and it might just be possible that Nintendo can be persuaded to buy it and put it out as one of its own products.

As they snack on shrimp, cheese and caviar, Needle feels uneasy. Something isn't quite right. Many decades later, he recalls exactly what he was thinking, "We didn't have a planned presentation", he says. "I felt it wasn't the sort of pitch that you made off the cuff. It would take a lot of work to present it properly. It was Japan. I'd dealt with this sort of stuff before, and if we were going to be on their playing field, we must play by their rules." Needle's instinct was right. Joe Horowitz was convinced that they would be able to force their way into Nintendo's pocket. And while David Morse remained sceptical, he was powerless to call a halt to proceedings. The flight to Japan was to prove lengthy.

The meeting had been set up by Henk Rogers, a Dutch-born videogame designer and entrepreneur known for successfully winning the handheld and console licences of *Tetris* from the former Soviet Ministry Of Software And Hardware. Henk had snatched the rights from under the nose of *The Mirror* chief Robert Maxwell. At this moment in time, however, he was helping Epyx make its pitch. He knew the president of Nintendo extremely well, and Epyx figured this would be a fundamental contact in the whole business.

What Epyx hadn't predicted, however, was the aggressive pitch put forward by Joe. "We were in the presence of Nintendo," Needle recalls. "Joe tried a hard sell, and as he spoke, David and I felt our faces turn red. It carried on for some time, and before long we were ordered out of the building. It was just too strong. Yet it didn't stop Joe – he got even louder. Luckily, Henk intervened and put an end to the pitch. Nintendo ▶

INSTANT EXPERT

The Lynx was the world's first colour handheld console and was initially sold with *California Games*.

It came packaged with a case, a ComLynx cable and AC adapter (later replaced by six rapidly depleting AA batteries).

The handheld was developed by Epyx using the talents of Dave Needle and RJ Mical and attracted Atari's interest even though both had been members of the Amiga design team.

Dave and RJ had based the Lynx developer's kit around a Commodore Amiga.

With a 3.5-inch screen, the Lynx visually packed a punch. The screen could even be flipped to allow for left or right-handed play.

There was a two-inch speaker (the Lynx II had two speakers) and an eight-directional joypad.

The console had two basic chips and they each had a name too: Mikey and Suzy. (Aww!) Both were 16-bit custom CMOS chips running at 16MHz and were run via an 8-bit CPU.

While Mikey ran the sound and video driver, Suzy looked after the blitter, sprite rendering and hardware scrolling.

Game cartridges could hold up to 2MB of data that was loaded into the Lynx's 64K of memory. Most of the cartridges, however, were 128K.

Up to 18 players could link up using the ComLynx cable as long as they had their own copy of the game. Infrared was going to be used initially.

» In an attempt to boost sales, Atari reduced the price of the Lynx to just a whisker below $100.

Year released: 1989 (US) 1990 (UK)

Original price: $189.95/£189.99

Buy it now for: £100+

Why the Lynx was great... With its great full-colour screen and a roster of remarkably solid arcade conversions, Lynx was ahead of its time. And although it had poor battery life, titles such as *Chip's Challenge*, *California Games* and *Klax* were worth charging them up for. While the Lynx often gets to thank Atari for hanging it out to dry, it really was a pioneering and robust console that absolutely deserves its moment in the spotlight.

A Lynx To The TV

When the Atari Lynx was being created, the team pondered whether or not to enable it to be hooked up to a television. The idea was cast aside, however, because it was decided it would prove too limiting to the architecture if the handheld needed to produce a TV-compatible image. "Things like frame-rate, aspect ratio, line count, colour saturation limits and so on were just too limiting," explained Dave Needle. "So we declared that no work would be done for any TV capability at all. The downside was that it was hard to do screenshots for the press. The upside had a surprise, in that Sharp, our first selection for the LCD manufacturer, had refused to help us because it feared that the final product could be used as a TV and thus hurt its LCD TV sales. The architectural impossibility of a TV version gave us the needed inroads. In the end, we used the Citizen LCD, although it had similar concerns." One idea to allow the Lynx to be used with a television was also rejected, mainly due to the fact that the Lynx screen was not up to broadcast standards.

» Cartridges came in several different forms: flat, ridged and curved lip

ATARI
LYNX
Hard Drivin'
TM of Atari Games Corp., lic. to Tengen, Inc.
© 1990, Tengen, Inc. Lic. to Atari Corporation
All rights reserved. PA2044 Made in China.

▶ then allowed us to remain for a moment so the reps could show us something."

A pair of small boxes were brought into the room. They were placed on a table and opened in front of us. Dave Needle, David Morse and Joe Horowitz glanced across at each other nervously, uncertain of what was about to be revealed. Inside each box was a set of handheld videogame consoles. There was a communications cable that enabled them to be played together, and it was ready to go to market. "We were the first non-Nintendo people to learn of the existence of the Nintendo Game Boy," Needle claims, recoiling even at the memory. "We were crushed. Joe was infuriated. The Nintendo boss left the room and we just sat there, wondering what to do next."

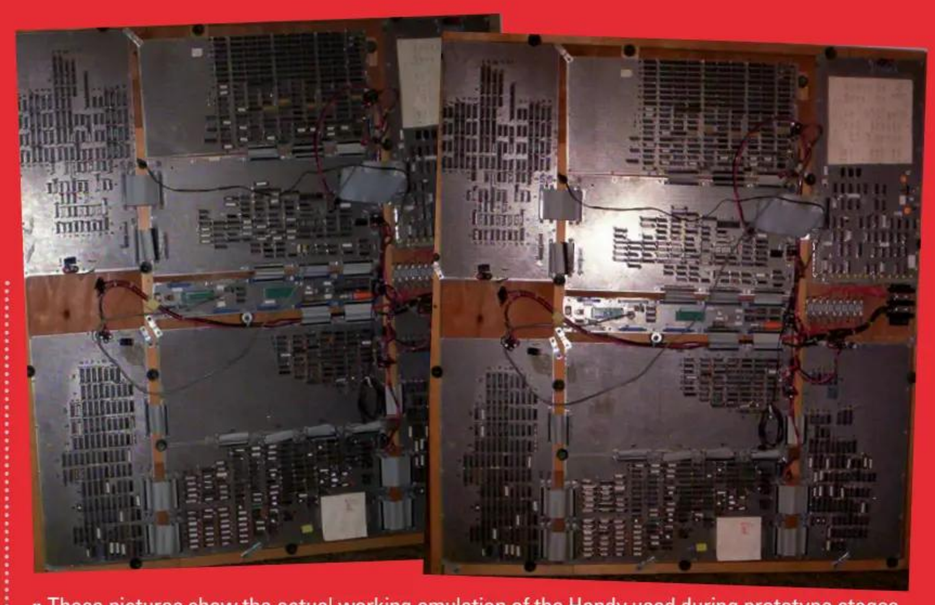
The Handy was an ambitious project. A full-colour, 16-bit handheld games console that was so far ahead of its time, it took 12 years before anyone bettered it. It was devised by Morse, Needle and RJ Mical, working with a large, talented team at Epyx and had been drawn up on napkins in August 1986 while the trio were enjoying a meal in a cafe in the affluent Foster City, California. They were already heavily involved in the computer industry: Morse had been the mastermind of the Amiga home computer, and RJ and Needle were members of that team and had played a large part in its creation. It was time to start something new.

"We were really intrigued by the idea of creating a handheld console," says Needle. "We knew it was possible and so we cracked on with it straight away." As for the 'Handy' name: "I can't remember how we got the name," says RJ. "Everyone was popping up with clever stuff in those days. They were heady times filled with promise and productivity. Man, we jammed."

Before long, Epyx had assembled a team large enough to look after the software, hardware, industrial design and audio facilities of the console. Morse, who had been installed as Epyx's CEO after founder Jim Connelley decided to leave, put the entire process together and led the project from the start.

The first prototype of the Epyx's handheld had a black-and-white screen. "But it didn't have the 'zing' we thought it ought to have," says Needle. "Many people in the group wanted us to stick to black and white. They said the cost, battery life, weight and viewability effects of changing to colour would hurt the product." Yet Needle and RJ stuck to their guns and the project shifted to colour – 4,096 of them, the same number as the Amiga. "It was a continuation but we weren't creating a handheld Amiga," says RJ. "The leading-edge display was the most expensive component, so the colour choice was one of economy." Needle adds: "If the low-cost glass and drivers would have supported a million colours, I would have done it." It was decided that the 65C02 chip would be used since it outperformed the rest and the Handy also became the first gaming console with hardware support for zooming and distortion of sprites. It allowed for fast pseudo-three-dimensional games and made life easy for programmers.

© Evan-Amos



» These pictures show the actual working emulation of the Handy used during prototype stages.

"Many engineers knew it and would happily program in assembly for it," RJ says. "There was a large existing body of code because the 65C02 was in popular systems such as the Apple II and the Commodore 64." Best of all, though, it was cheap and fast. Needle explains: "I invented the technique for planar expansion/shrinking capability for an arcade game I had done several years before. It was a space alien/earth attack game with a 3D rotating planet, 3D giant robots, ground-tracking shadows and was pretty cool. We also came up with a way of avoiding filled polygons by taking a triangle and sizing it as you wished. It's not as great as a real polygon, but this way the surfaces had full texture all the time with no performance penalty."

> "It was Japan. I'd dealt with this sort of stuff before, and if we were going to be on their playing field we must play by their rules"
>
> Dave Needle

While work progressed on the hardware, Epyx continued to produce videogames such as *Chip's Challenge* and a Handy department was created. At one point, it was sealed off from the rest of the building for security. It was decided that cartridges would be used for the games. Although there had been reports that games were going to be loaded from tape, RJ says there was no truth in them. "We did think about hard disk a little…"

Yet by the time the machine was ready, Epyx had hit financial problems. The Commodore 64 market, which was Epyx's core audience, wasn't pulling in the cash anymore. It had also invested in VCR games but with little success. Staff levels were falling from around 200 at its peak to just 20 employees. If the Handy was ever going to be released, it would need the backing of another company. Hence, the ill-fated journey to Nintendo…

When that fell through, Horowitz decided to approach Atari and made a phone call to Jack Tramiel, the chief executive at that time. Atari had already tried its hand at producing a portable machine, the Atari 2200, which was based on the Atari 2600, but it just couldn't seem to get it right. Atari began to ignore the growing stature of consoles and had become heavily involved in a business war against Commodore. Jack Tramiel finally realised the worth of consoles when the NES stormed onto the market – so he was rather taken by the Handy, believing it to be a great way back to console dominance.

Soon after Joe Horowitz approached Atari, Jack's son, Sam, went to Epyx. He was greeted by Joe and shown around. They then sat in an office and discussed some terms. It was eventually decided that Atari would manufacture and market the handheld console and Epyx would create the videogames, getting paid by Atari for each title that was produced. However, in the contract was a clause that issued Epyx a deadline. For

» *Checkered Flag* was a top racer for the Lynx and highly sought after.

example, the company had 60 days to fix any bugs that Atari said needed to be rectified. Needle says: "Atari routinely waited until the end of the Epyx time period to comment on the Epyx fixes." According to Needle, Atari decided to "punish" Epyx by withholding payment. In the end, this sent Epyx into financial turmoil. Atari did hold out a lifeline – paying Epyx, but only on the condition that it handed over the Handy.

The deal obviously upset RJ and Needle. They asked their lawyers if they could leave Epyx, but they were advised that it would be seen as an overt action by them to damage Atari and that they could be sued. The pair remained at Epyx until the hardware handover was complete, turning down an offer from Sam to work at Atari.

With Morse, RJ and Needle's involvement in the project coming to an abrupt halt, Atari took the Handy and renamed it the 'Lynx'. It was two years before the company released the console in September 1989 however, and by that time Nintendo's Game Boy had also been released. "Looking back, if we had decided not to go colour," says Needle, "we would have been a zero. The Game Boy really would have trounced us." As it was, the colour feature of the Lynx kept the machine in the limelight, although it wasn't plain sailing. The Lynx cost $189.95 and the Game Boy retailed for $89.95. Many felt the Lynx was too expensive at the time and there was a vicious circle of few purchases, putting off third-party developers, which, in turn, lead to fewer and fewer purchases.

As sales continued to fall, Atari tweaked the machine and created the Lynx II. It retailed for half the price of the original, and was smaller and cheaper to make – plus it had stereo sound, as well as better battery life and a pause option that allowed the screen to be turned off, thus saving power.

Needle wasn't convinced by the changes. "During the handover, [Atari's] mechanical engineer made some changes," he said. "The guy told me that he always liked to put a piece of himself in any product he worked on. He changed the backlight electronics and the transformer design and reduced the battery life. But he also changed the high-voltage capacitor to one with considerably more leakage at the oscillation frequency and it generated considerable heat. The new load on the batteries caused them to overheat." Nevertheless, sales picked up and it seemed Atari was onto a winner.

Then came Sega and its Game Gear in 1991. For Lynx, this meant the end was nigh. Although the Lynx remained the superior machine, the Game Gear benefited from Sega's advertising drive and the company's vast resources. What was more frustrating was Game Gear's similarities to Lynx.

"Game Gear was an interesting issue," Needle remembers. "Sega was shown all of the Handy's innards and schematics and specs as part of an attempt to partner with them after the Epyx marketing fiasco. And to see what I consider to be pretty much a copy of the Handy was a bit infuriating." He continues, "I had become friends with one of the engineers at Sega, and during the last development stages of the Game Gear, after I had already left Epyx, Sega hired me to help with a few lingering product issues."

Despite the problems, Dave Needle remains proud of the Lynx. Among his favourite games for the handheld are *Chip's Challenge*, *Gates Of Zendocon* and *California Games*. "It's a matter of pride that no one created anything better for 12 years," he adds. RJ maintains that, "All the Lynx needed was low cost and a huge library of software. But I place the blame for both of these in Atari's lap…" ✱

» Colourful and pretty games such as *Toki* made full use of the colour capabilities of the Lynx.

OTHER VERSIONS…

Lynx II

One of the hallmarks of the Atari Lynx (other than poor battery power and the ability to flip the screen upside down so that left-handers could play) was its size. It was enormous. So when Atari decided that competition from the more compact Game Boy meant that the Lynx needed a revamp, one of the first things it did was cut it down to size. But that's not all. As well as making the rubber hand-gripped Lynx II smaller, the battery power was enhanced, it added stereo sound and it had a power-saving pause option that turned off the improved screen. It was also cheaper, retailing at £99, although it didn't come with any accessories or a game. "By removing the game cartridge, we have brought the price down below the psychological £100 price point," Atari spokesman Peter Walker said at the time.

LYNX
THE WORLD'S BEST VIDEO GAME MACHINE JUST GOT BETTER!
THE MOST ADVANCED VIDEO GAME SYSTEM!
BEST VALUE!
NEW TITLES AVAILABLE NOW!
EXCLUSIVE PREVIEWS OF HOT NEW LYNX TITLES!
ANNOUNCING THE LYNX PHONE HOTLINE!

» Atari's Lynx catalogue showed off the large number of games.

» Wonderful puzzle game *Chip's Challenge* was one of the Lynx's most endearing titles.

Anti Red-Eye

Although RJ Mical was happy with the Lynx, saying, "We got exactly what we set out to create," one feature he would have liked was infrared. Named RedEye, the infrared capability was demonstrated in the lab but it was decided to go for the ComLynx instead. "RedEye would have been cool," says RJ. "You would need to maintain 'line of sight' between players, though, and that could have been a problem. We dreaded the feared 'crossing legs boy' who would fold his legs over and block his unit from the network."

PERFECT TEN GAMES

It may have been KO'd by the Game Boy, but Atari's Lynx was still home to some wonderful games and arcade conversions. Don't believe us? Then check this lovely little selection of classics out…

01

CHIP'S CHALLENGE

RELEASED: 1989

DEVELOPED BY: EPYX

BY THE SAME DEVELOPER: SUMMER GAMES

01 There is no shortage of puzzlers on the Lynx, but when the quality is as good as *Chip's Challenge* you don't tend to mind them cluttering up the console (or this Perfect Ten for that matter). While the concept itself is not particularly original (you basically have to move Chip around each maze in search of a set amount of computer chips) it has been put together with so much love, care and attention that you can't help but become smitten with it. Chip himself may be only a few pixels high, but he's full of character and you can't help but feel for him as he carries out his tricky quest. It may have been ported over to a number of different machines since its release, but the bite-size puzzles make this perfect fodder for Atari's handheld.

KLAX

RELEASED: 1990

DEVELOPED BY: ATARI

BY THE SAME DEVELOPER: GAUNTLET

02 *Klax* is easily deserving of a place in this top ten and it's not just because it features the most pleasant videogame voice of all time. Converted from the Tengen coin-op, *Klax* is an almost perfect arcade adaptation that not only captures the authenticity of the original but also proves that the Lynx was no slouch when it came to hosting great puzzlers. Deceptively simple to pick up – all you have to do is stack three tiles of the same colour on top of one another, either horizontally, vertically or diagonally – *Klax* is perfect proof that you didn't need to own a handheld with a monochrome screen in order to appreciate one of the world's best puzzle games. And yes, that does mean we like this just as much as *Tetris*. Oh, controversy…

02

RAMPART

RELEASED: 1991

PUBLISHED BY: ATARI

BY THE SAME PUBLISHER: BATTLEZONE

03 It might not match the majesty of its arcade parent, but there's still plenty to love about this extremely slick Lynx conversion. While it suffers from the lack of a trackball, it still plays well and doesn't let you down on later levels once the action speeds up. The mix of *Tetris*-styled wall building and strategic blasting works perfectly and makes for a very unique experience. It's a lot tougher than the original (because the enemy ships can now drop off ground forces) and the loss of the third player is a shame (the Lynx should easily be able to handle it), but this is otherwise another cracking conversion and a healthy addition to the Lynx's library.

LEMMINGS

RELEASED: 1993

PUBLISHED BY: ATARI

BY THE SAME PUBLISHER: PAPERBOY

04 *Lemmings* has appeared on virtually every console and computer that has ever been made, so it should come as no surprise that the loveable mop-tops can also be found on the Atari Lynx. What is surprising, though, is just how good an adaptation of *Lemmings* this actually is. Despite the small screen and lack of a mouse there are no problems with this spot-on conversion. Your little fellas are perfectly animated and full of character, the levels are easy to navigate and it's incredibly intuitive to select each class. In fact, the only thing that is likely to put fans off is that you're going to be extremely unlikely to find a copy of the game for a low price.

S.T.U.N. RUNNER

RELEASED: 1991

DEVELOPED BY: ATARI

BY THE SAME DEVELOPER: CHAMPIONSHIP SPRINT

05 If anyone doubts the power of Atari's Lynx, simply shove a copy of *S.T.U.N. Runner* under their noses and watch them go into serious denial. While it obviously can't hope to match the insane slickness and plentiful polygons of the arcade original, this Lynx conversion is amazingly polished and perfectly captures the atmosphere of its larger peer. Granted, it's far more unforgiving than its bigger brother – you'll find the controls a little sensitive to begin with – and the gameplay is rather simplistic, but if you're looking for a thrilling racer on Atari's handheld you won't find anything better.

03

04

05

06

07

08

BLUE LIGHTNING

RELEASED: 1989

DEVELOPED BY: EPYX

BY THE SAME DEVELOPER: IMPOSSIBLE MISSION

06 This may well have been one of the earliest titles to show off the Lynx's graphical grunt, but that's not to say it wasn't a superb game in its own right. Essentially Atari's answer to *After Burner* and *Star Fox*, *Blue Lightning* put you at the stick of an advanced military jet and required you to shoot down wave upon wave upon wave of enemy fighters. Sure, it gets repetitive, however the action is always fast and frantic, the nine levels have a variety of nice environments to fly through, and the scaling effects are truly fantastic on this plucky handheld. If you're looking for a good blaster then set your sights on *Blue Lightning*.

XENOPHOBE

RELEASED: 1992

PUBLISHED BY: ATARI

BY THE SAME PUBLISHER: BILL AND TED'S EXCELLENT ADVENTURE

07 While the Lynx had many fine conversions, it was only really *Xenophobe* that managed to notably improve on its arcade original. For starters, the controls were streamlined and far easier to use (the arcade's three-button joystick was quite cumbersome), new items like the jetpack enabled you to fly around the space station without taking damage, while several new multiplayer modes kept the gameplay fresh and exciting. Add in some cartoony visuals that perfectly mimicked the arcade parent and the end result is a highly enjoyable multiplayer experience that proves hunting down aliens on the go can be as fun as it sounds.

ALPINE GAMES

RELEASED: 2004

DEVELOPED BY: DURANIK

BY THE SAME PUBLISHER: NATIVE DEMO

08 Normally, we wouldn't cover a homebrew title in our Perfect Ten for fear of upsetting people, but *Alpine Games* is so brilliant that it would have been criminal not to include it. Essentially a homage to Epyx's sports games of old, *Alpine Games* ups the ante considerably by featuring nine events, nifty digitised music and some astounding visuals that push the Lynx further than we've ever seen. The bobsleigh, in particular, looks absolutely amazing, but it's the finely balanced gameplay that really manages to impress. It may cost over £20, but no Lynx owner should be without this fantastic title.

09

TODD'S ADVENTURES IN SLIME WORLD

RELEASED: 1992

PUBLISHED BY: EPYX

BY THE SAME PUBLISHER: WINTER GAMES

09 We were going to go with *Bill And Ted*, but we decided that *Todd's Adventures* is slightly better (it was a really close call, though). Anyway, *Slime World* sees you thrown into a series of caverns in search of precious Slime Gems. Sadly for Todd, Slime World is literally covered in gross icky enemies, so you'll need to constantly keep his water gun filled up so you can clean up the pulsating planet. Like many Lynx titles, *Slime World* is very pretty and the slime-coated caverns that Todd explores are constantly in motion. *Slime World* itself is absolutely huge and it will take an age to fully explore this *Metroid*-styled adventure.

ZARLOR MERCENARY

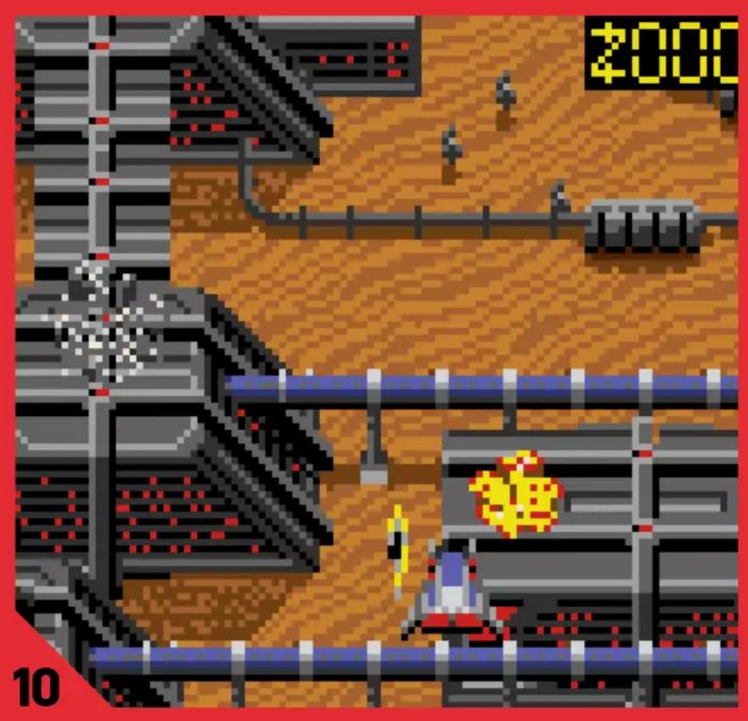
RELEASED: 1990

DEVELOPED BY: EPYX

BY THE SAME DEVELOPER: CALIFORNIA GAMES

10 With *Robotron: 2084* just missing out due to its overly complex control system, *Zarlor Mercenary* quickly swoops in and deservedly steals the last position in our prestigious top ten. Set across six huge and incredibly varied levels, *Zarlor Mercenary* doesn't do anything astoundingly new, but what it does do is exceptionally well polished. Destroyed enemies release coins that can then be spent on power-ups, there are some genuinely tough bosses to topple and the pseudo-3D visuals used throughout the game are very effective. There's even a superb multiplayer option that enables you to team up with three other pilots to take on the enemy forces together. Truely cracking stuff.

Thanks to AtariAge.com for providing screenshots



10

ATARI LYNX HIDDEN GEMS

EPE

INTERESTING GAMES YOU'VE NEVER PLAYED

» [Lynx] The hidden *Battlezone* looks completely different; those icons can be interacted with too.

» [Lynx] There are 2,000 Zones to battle through in the game, meaning you'll be playing for a while.

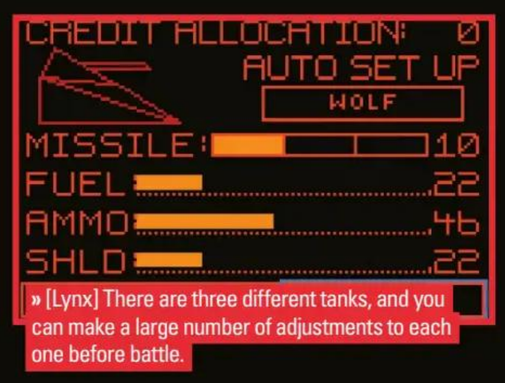
2

BATTLEZONE 2000

■ DEVELOPER: HANDMADE SOFTWARE ■ YEAR: 1995

■ By 1995, the Atari Lynx was a footnote. Many had left the system behind due to the well running dry and few games were getting released. And yet, in the same year that the PlayStation and Saturn began to make their presence felt, Atari released two of the Lynx's most impressive games: one was *Super Asteroid & Missile Command*, the other was *Battlezone 2000*. Both games were part of a planned Lynx relaunch, but Atari diverted all its attention to its Jaguar console instead, and its limited funds meant that its impressive portable never received a second stab at success.

Initial appearances suggested that *Battlezone 2000* was a simple adaptation of the once–popular arcade game, but playing it revealed this wasn't the case at all. Although *Battlezone 2000* looked similar to the arcade original, it was structured completely different, with a variety of different missions and several tanks to choose from. The tanks themselves could be customised and it was possible to tweak their shield, ammo and fuel, safe in the knowledge that suitable power-ups could be picked up on the field during play. Some levels required you to destroy a set number of tanks, while others requested that the stage be completed in a specific amount of time or that a certain point threshold was met. It kept the game interesting, and, coupled with the slick controls, meant that the pace of *Battlezone 2000* was always exciting, more so if you could link up with three other players.



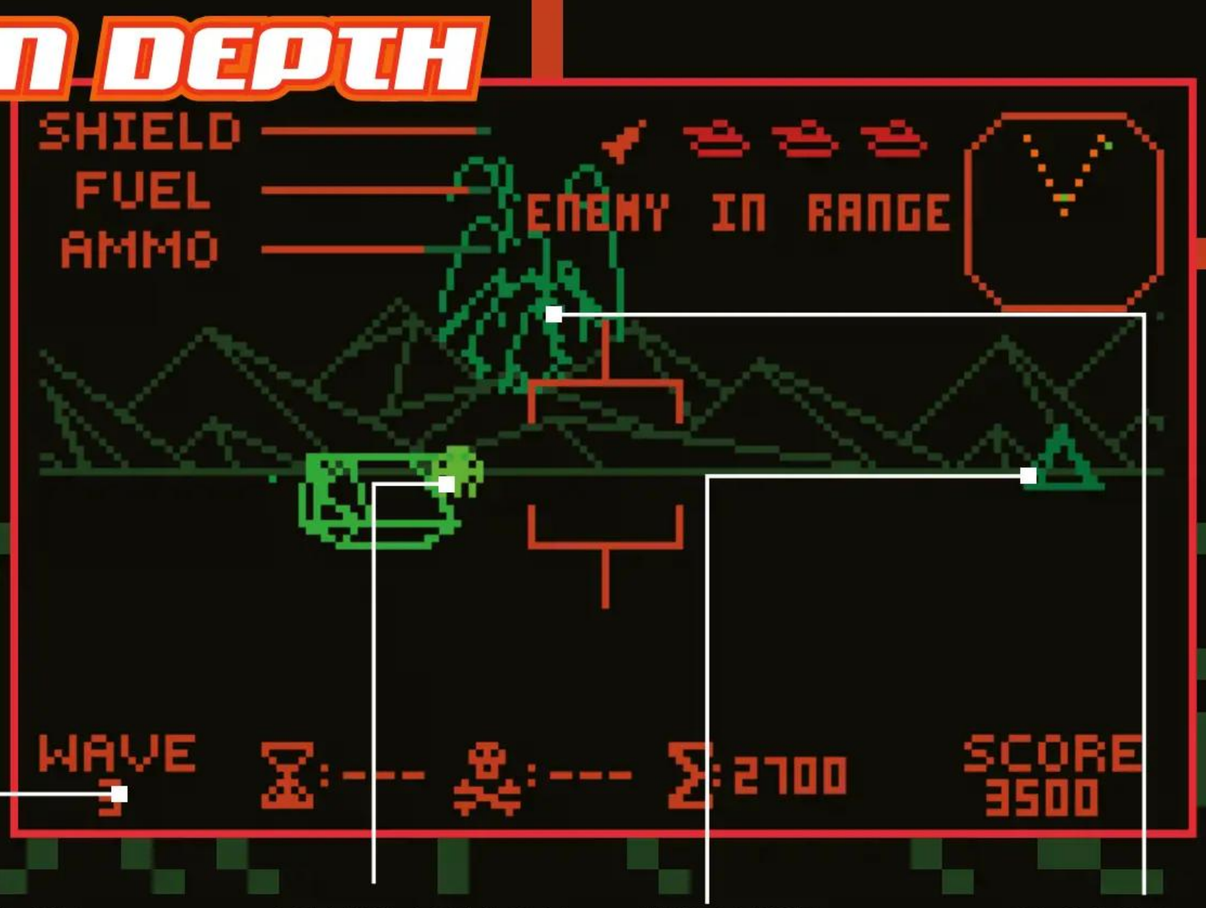
» [Lynx] There are three different tanks, and you can make a large number of adjustments to each one before battle.

As good as *Battlezone 2000* was, this aspect of the game tells only half the story. Amazingly, the developers locked an enhanced version of *Battlezone 2000* inside the game, with no clear indication in the instructions on how to reach it. It's unclear why it was kept hidden (some speculate that Atari felt it was too difficult and complicated for players to grasp) but it's an astonishingly bone-headed move as it's truly excellent.

For starters it looks fantastic as it features filled polygons and full colour graphics. It obviously takes a hit speed-wise compared to the wireframe version of the game, but it still moves at an impressive rate and easily puts many similar games on home systems to shame.

It builds on the mission structure of the standard Lynx game, but adds things like independent movement (activated by pressing Option 1) a huge map with different environments and objectives to complete and a ridiculous amount of customisation that admittedly feels a little daunting the first time you encounter it. Persevere, however, and you'll discover that this second iteration of *Battlezone* has a lot to offer. Yes, it's a little fiddly due to having to access out of the way icons during play, but it's incredibly satisfying all the same. The game is absolutely huge in size too, as that gigantic map essentially consists of 2,000 different levels to complete, meaning Handmade Software's game will take an absolute age to master. *Battlezone 2000* is a game that every Lynx owner needs in their collection, just be aware that its late launch means those copies that do crop up are typically pricey.

IN DEPTH



LEVEL-UP

■ Every wave in *Battlezone 2000* is different and ensures that the game feels fresh. Shoot first and ask questions later and you will be fine.

TANK TROUBLE

■ There are a variety of different tanks in the game and they're all tough to deal with. You'll need to react quickly if you want to defeat all of them.

WARNING, INCOMING OBJECTS!

■ As with the original game, there are objects that can be used to hide behind.

CLASSIC TOUCHES

■ As well as looking similar to the original, *Battlezone 2000* also features the volcano. It's a neat nod to the coin-op classic.

IF YOU LIKE THIS TRY...

SPECTRE

SUPER NINTENDO

■ It's not the terrible *James Bond* film, but a vector-based combat game that's very similar to *Battlezone*. The player must roam around a large playfield on the hunt for a number of flags while avoiding other tanks. It started off life on the Apple Mac, with the SNES version being an enhanced update.

BATTLEZONE

XBOX 360

■ Created by Stainless Games in 2008, *Battlezone* includes the original arcade classic (complete with achievements and leaderboards) but also adds a new 'Evolved' mode. While similar to the original, it adds additional game components, including Team Deathmatch and Capture The Flag options.

WORLD OF TANKS

PC

■ This free-to-play online battler has been a phenomenal success, allowing players to compete against others in a variety of frantic battles. There are six different types of battles to participate in, along with camouflage mechanics and lots of customisation. It also boasts a surprisingly fair free-to-play model too.

BATTLEWHEELS

■ DEVELOPER: BEYOND GAMES ■ YEAR: 1993

■ It's a pity Kris N Johnson only made a couple of games for the Lynx, because he really coaxed the best out of it. For those that have never played it, *BattleWheels* is a fast-paced action game that plays to the Lynx's strengths and reveals just how capable Atari's console was when it was in the right hands.

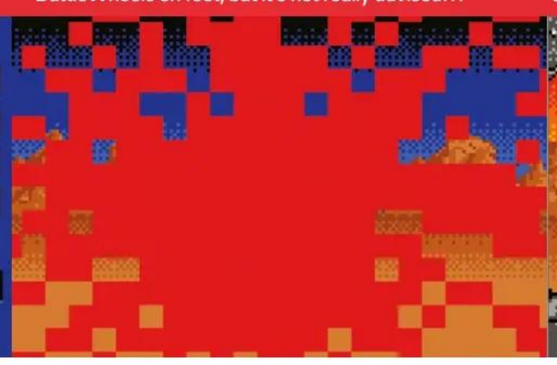
Graphically, it's rather astonishing with some truly impressive scaling results that still manage to wow today. Vehicles tear around the screen at a decent frame-rate while downed enemies get out of their wrecked cars and rush towards you. Explosions fill the screen constantly, while the first-person view throws you right into the action, allowing you to soak up the carnage that's happening in front of you.

The gameplay of *BattleWheels* can't match the spectacle of its aesthetics but it remains enjoyable. Essentially, it's an arena-based multiplayer game and is at its best played against other Lynx owners. While the game caters for up to six players, it's likely that most Lynx owners will have only experienced it as a single-player game where you're thrown into a large arena and must take out the other players as quickly as possible. Your vehicle is armed with a suitable array of weaponry, and buildings provide useful cover against opponents. It creates a nice dynamic too, allowing you to expose yourself briefly to down enemies, before scurrying back to cover again.

While *BattleWheels* is aimed at multiplayer, the AI is challenging enough to ensure that playing on your own doesn't feel like a chore. If you can find some extra players though, you'll discover *BattleWheels* to be one of the best multiplayer games on the system.

» [Lynx] It's possible to check out the action from the side and rear windows.

» [Lynx] There are an array of options, allowing you to change the number of enemies and types of vehicles used.



» [Lynx] You can even enter the arena of *BattleWheels* on foot, but it's not really advised…

» [Lynx] The scaling throughout is very impressive and highlights the power of Atari's handheld.

MORE GAMES TO PLAY

» DIRTY LARRY: RENEGADE COP

■ DEVELOPER: KNIGHT TECHNOLOGIES
■ YEAR: 1992

■ This may be just another scrolling beat-'em-up but it's one that tries to break the mould. Unlike many of its peers, *Dirty Larry* immediately arms you with a gun, giving you an advantage against the city's scumbags. It also features narration from Larry, which captures the gumshoe vibe that Knight Technologies has been inspired by. It lacks variety, but it is fun while it lasts.

» GORDO 106

■ DEVELOPER: TENTH PLANET
■ YEAR: 1992

■ This is one of the Lynx's most interesting platformers and revolves around helping test subject Gordo 106 escape from a mad scientist's lab. The gameplay is a little tricky due to the numerous bottomless pits and finicky controls, but once you get the hang of it you'll be swinging from light to light and running around the lab with ease. *Gordo 106* isn't groundbreaking, but it plays well and features impressively large sprites.

» ISHIDO: THE WAY OF THE STONES

■ DEVELOPER: SOFTWARE RESOURCES INTERNATIONAL ■ YEAR: 1991

■ This puzzle game is easy to grasp, but difficult to master. The idea is to place 72 stones on a game board consisting of 96 squares. Each pair of stones has a colour and a symbol, and there are six colours and symbols in each set, making 72 stones in total. It sounds straightforward, but the need to ensure that each placed stone matches those adjacent to it will soon cause major headaches.

» MALIBU BIKINI VOLLEYBALL

■ DEVELOPER: HANDMADE SOFTWARE
■ YEAR: 1993

■ This is another solid effort from Handmade Software. Graphically, it's neat with strong animation and crisp visuals. Options-wise, *Volleyball* is substantial; you can adjust the play time, the wind speed and the points needed to win and it caters for up to four players via the ComLynx. It takes time to get used to spiking the ball and your partner's AI is can be erratic, but it still manages to deliver.

CHECKERED FLAG

■ DEVELOPER: ATARI CORPORATION ■ YEAR: 1991

■ If we have one complaint about *Checkered Flag* it is that it's a little unforgiving at times. The AI is quite ferocious, even on the earlier stages, meaning you have to constantly battle for position as you tear around the well-designed tracks. Of course, some will enjoy this, as games need to be challenging, but we'll admit that others might not appreciate the rather high entry level.

Get past this, however, and you'll discover a lot to enjoy about this spiritual successor to *Pole Position*. Graphically it's very good with great animation and super slick scrolling. It's not quite as fast as we'd like, but it remains solid and there's plenty of trackside detail. It even features a neat follow camera, with the player able to switch between other racers with a press of Option 1 if they get knocked out of a race.

There's a surprising amount of customisation to be found in *Checkered Flag* from the number of drones you can race against to the amount of laps and whether you race as a male or female driver. You can participate in practice runs, take part in single heats or even compete in a lengthy tournament. The range of options on display is highly impressive ensuring plenty of longevity, even outside of the six-player multiplayer mode.

» [Lynx] Spinning out may look rather cool but it costs you precious time.

» [Lynx] Female characters get smooched by a male model upon winning.

» [Lynx] *Checkered Flag* offers all sorts of different options to tweak.

"The AI is quite ferocious, even on the earlier stages, meaning you have to constantly battle for position"

RETRO JUNKED

» KUNG FOOD

■ DEVELOPER: LORE GAMES ■ YEAR: 1992

■ A scrolling fighter where you beat up anthropomorphised food might sound fun but the reality is terrible. A truly awful videogame that has some decent looking sprites, but very little else.

» DRACULA THE UNDEAD

■ DEVELOPER: HANDMADE SOFTWARE
■ YEAR: 1992

■ As far as we're aware this is the only videogame representation of the late Christopher Lee as Dracula. The sepia tones of *Dracula* suit it well, making Handmade Software's game look like a living photograph. The game is entertaining, too, with the player taking on the role of Jonathan Harker as he escapes Dracula's castle. *Dracula*'s only shortfall is that it only takes a few hours to complete.

» DINOLYMPICS

■ DEVELOPER: IMAGITEC DESIGN
■ YEAR: 1992

■ It's easy to dismiss *Dinolympics* as a *Lemmings* rip-off, but it's definitely its own game. Each level gives you a specific task, from collecting a spear to protecting an idol, and it must be achieved with a set number of cavemen - all of which have different abilities. Levels start off simple, but you'll find yourself utilising various skills as the stages get trickier. Oh, and if it sounds like *The Humans*, it's because it was renamed for the Lynx.

» SHANGHAI

■ DEVELOPER: MEDIAGENIC
■ YEAR: 1990

■ Here we have an incredibly simplistic game, but it's an exceptionally satisfying one too. There are a number of different board layouts to choose from, but the aim is always the same – clear every tile by matching them two at a time. It sounds simple, but tiles can only be removed from the structure's edges and *Shanghai*'s randomised nature means you can face some tricky combinations as play progresses.

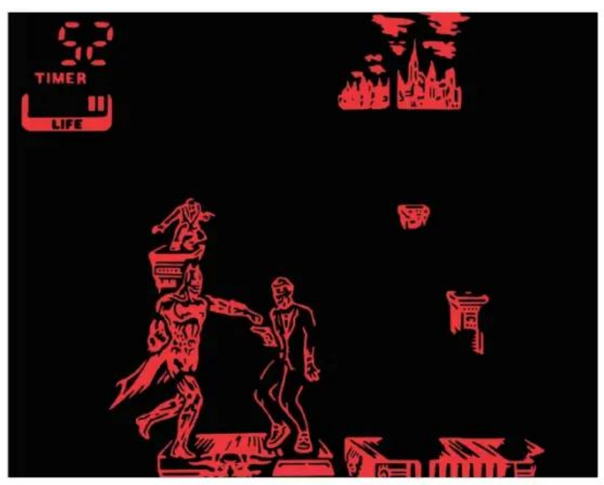
» AWESOME GOLF

■ DEVELOPER: HANDMADE SOFTWARE
■ YEAR: 1991

■ It's not quite as awesome as its title suggests, but Handmade's golf game is an essential addition to any Lynx library. There are three courses to choose from, set in America, Japan and England, it features an easy-to-use interface, there's a large array of customisable options and an excellent multiplayer mode. The swing meter is a little daunting at first, but it soon clicks, leaving you with an enjoyable rendition of the popular sport.

ESSENTIAL GAME
Batman Forever

None of the R-Zone cartridges offer a great deal of impressive gameplay, so we're choosing here based on significance to the system. Since *Batman Forever* was the original pack-in, and therefore one of the most common games, it's really the one we should highlight. As the caped crusader, your job is to wander along the rooftops, punching enemies in the face as they attack from the front or behind, while jumping over wrecking balls and gaps between buildings. It's very basic and the sound is ear-splitting, but it somehow manages to be more fun than *Batman & Robin* on Tiger's Game.com.



R-Zone fact

■ Because the R-Zone was often sold in a plastic blister pack, which would inevitably be destroyed upon opening, our 'boxed' price reflects that of brand-new and sealed units.

PROCESSORS: NONE
RAM: NONE
GRAPHICS: NONE
AUDIO: MONOTONE BEEPER
MEDIA: DEDICATED CARTRIDGE CONTAINING ALL GAME LOGIC AND DISPLAY

R-Zone

» **MANUFACTURER:** Tiger Electronics » **YEAR:** 1995
» **COST:** £33.99 (launch), £100+ (today, boxed), £30+ (today, unboxed)

Give it points for style, at least – there's no doubting that Tiger's R-Zone has a unique look. The unit consists of a mirrored visor attached to a headband, and looks just about as futuristic as any mid-Nineties kid could have hoped for, in much the same way as Konami's Laserscope attempted to a few years earlier. Unfortunately, that's just about the best thing you can really say about the R-Zone, other than that you'll recognise licensed names like *Virtua Fighter*, *Mortal Kombat 3* and *Men In Black*.

The R-Zone hosted exactly the same sorts of LCD games that Tiger had become well known for, but sold as cartridges rather than dedicated handheld units. Essentially, the R-Zone unit just provided power, sound output and controls, as the cartridges themselves contained all the game information and their own dedicated displays. A red light was shone through the LCD to give the final visual display – with all the redness of the Virtual Boy, but none of its impressive depth of field effects. The R-Zone would be released in a few different guises, including a more conventional handheld console, a tabletop unit and even a PDA-style device, but it never really took off as hoped. *

SYSTEM SUPPLIED BY
EVAN AMOS

THE STORY OF GAME GEAR

Sega was slow to get into gear during the portable console race, and arrived to market behind Atari and Nintendo. Join Nick Thorpe to find out how Sega's machine never quite reached top speed...

One of the interesting things about Sega was its belief in hitting the market early. The SG-1000, the very first console that the company manufactured, launched in the same month as the Famicom. Later, it would launch the Saturn early in an attempt to stifle Sony's PlayStation launch, and it kicked the following generation off very early with the Dreamcast. However, when handheld consoles began to hit the market in the late Eighties, Sega was caught flat-footed. Nintendo launched its Game Boy in April 1989, and the console quickly became a huge hit thanks to titles like *Tetris* and *Super Mario Land*. Atari introduced the Lynx in the autumn of that same year, attempting to capture the market with a powerful full colour system. Sega didn't have a response ready for either machine, and quickly set about putting one together.

In order to get the machine to market quickly, Sega built a backlit colour handheld console based on the Master System – it was technically almost identical, with two key differences regarding graphics handling. The first of these was a low-resolution mode which matched the 160x144 output of the Game Boy, though it could also utilise the Master System's 256x192 mode. The second was the upgraded colour palette – where the Master System could display 32 colours from a palette of 64, the Game Gear could display 32 from a palette of 4,096. The resulting system was very much the middle man of the pack – it was bigger, more expensive and more battery hungry than the Game Boy but more impressive to look at, and cheaper than the Lynx. ▶

» The Game Gear's circular d-pad is similar to the Mega Drive one, but with a flatter, wider treatment for the main directions.

» Early models of the Game Gear feature flat screen covers. Later models adopted the more familiar 'bubble' shape.

» The two-button controls of the Master System were retained, though some games pulled in Start as a third button.

“The display window was smaller, but basically games were developed cross platform”

Dominic Wood

POCKET PERFECTION

Exclusives that made the handheld sing

POPILS: THE BLOCKBUSTING CHALLENGE

■ Tengen ■ 1991

This puzzler is the final game designed by Fukio Mitsuji, better known for *Bubble Bobble* and *Rainbow Islands*. It's a challenge, requiring you to break blocks to rescue a princess. With 100 stages and a great level editor, *Popils* will keep you occupied for a long time.

SHINOBI II: THE SILENT FURY

■ Sega ■ 1992

The original *Shinobi* title for the Game Gear was ace, and this sequel retains its best feature – the ability to play as the forever grateful ninjas that you have rescued along the way, each of which boasted their own unique skills. The improved visuals and level design give *Shinobi II* the slight but distinct edge over its predecessor.

DEFENDERS OF OASIS

■ Sega ■ 1992

While the Game Gear doesn't have a huge number of RPGs, it does have quite a few good ones. The desert-themed *Defenders Of Oasis* is one of the best, managing to provide enough depth to satisfy players while respecting the handheld format, ensuring that players can make good progress during quick sessions.

POWER STRIKE II

■ Compile ■ 1993

It's hard to imagine a full-fledged shoot-'em-up being crammed onto the Game Gear's 3.2-inch screen, but Compile managed it – the amount of carnage packed in this shooter is impressive. It's not cheap, but it doesn't reach the exorbitant prices of the Master System game, which shares only its name and developer with the Game Gear version.

ARENA

■ Eden Entertainment Software ■ 1995

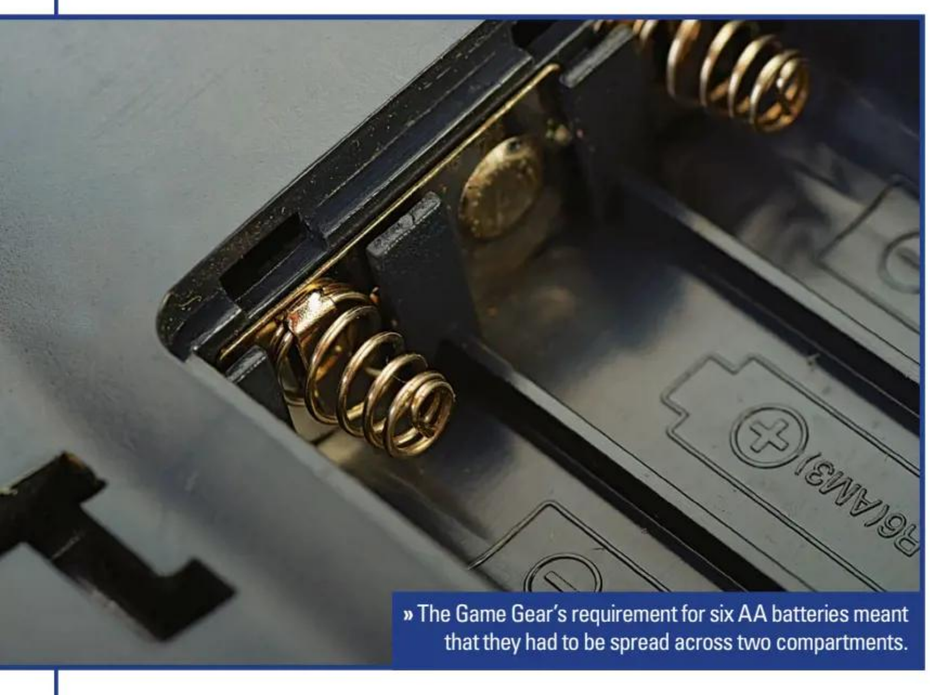
This visually impressive isometric action game challenges you to escape deadly mazes, while being hunted by enemy robots and soldiers. You will need to keep up the pace, as while it is possible to shoot your enemies, you'll often fare far better by dodging them unless you've picked up some good old power-ups.

The choice of the Master System as a basis for the system's capabilities allowed developers to get to grips with the machine easily, as the differences between the Master System and Game Gear proved to be fairly minor. "There's not much in it to be honest," explains Dominic Wood, a former Probe coder who later formed Syrox Developments, and worked as programmer for popular Game Gear titles including *The Terminator*, *The Jungle Book* and *The Lion King*. "The display window was smaller, but basically games were developed cross-platform, with code to make sure important stuff like scores and lives indicators were moved into the smaller screen real estate." The development environment was a boon, as console manufacturers weren't in the habit of providing developer support at the time.

The Game Gear launched in Japan on 6 October 1990, retailing at ¥19,800. Despite the ease with which games could be converted to the new handheld, it was accompanied by just three games at launch: *Columns*, *Pengo* and *Super Monaco GP*. The key game was *Columns*, which served as Sega's analogue to *Tetris* – not only was it a similarly addictive puzzle game, it would also go on to become a long-serving bundled game. Though early sales were brisk, further software support was slow to arrive and the early units were prone to certain defects.

After a slow start in Japan, the system gathered steam throughout 1991. The year saw a number of third-party publishers join the Game Gear ranks including Namco, Taito and Compile, and the system received its international launches, arriving in the US test markets of New York and Los Angeles in April for $149.99 and Europe in June for £99.99. Following on from its successful confrontational marketing with the Genesis, Sega Of America adopted a similarly combative approach with the Game Gear, declaring in its initial advert "If you're still playing with Game Boy, it's time to grow up."

The system received one of its best peripherals late in the year thanks to a company called Kalplus, which had developed an adaptor that enabled Master System cartridges to be played on the Game Gear. Although it wasn't compatible with a few titles including *OutRun*, this device was licensed by Sega and sold as an official accessory, giving the system access to a huge range of existing software. Late in the year, the arrival of Sega's new mascot *Sonic The Hedgehog* gave the system a quality platform game and some star power, rounding off a good year.



» The Game Gear's requirement for six AA batteries meant that they had to be spread across two compartments.

Despite all of this, Sega found itself unable to match the sales of the Game Boy. Nintendo's head start in all regions had helped it to establish the system early on, and *Tetris* was an incredible bundled game. The Game Boy was also far more portable than Sega's machine, able to last far longer on fewer batteries, and it also had more third-party developers on board, including major companies such as Konami and Capcom. But while Sega struggled to match the universal appeal of *Tetris*, it was at least able to establish a clear lead over the Atari Lynx. Sega's ability to attract third-party developers outstripped that of its American rival, and its appeal was beginning to grow at a rapid rate due to the success of the Mega Drive, enabling the company to spend more cash on marketing its machine.

The result of this market performance was that the Game Gear settled into a different market placement over 1992. Japanese third parties became particularly unenthusiastic about the Game Gear and drastically reduced their support for the machine, but western publishers were convinced of the platform's value – albeit as a supporting part of a multiplatform strategy, rather than a lead platform for development. In practice, this meant that the system's line-up became heavily populated by conversions of major hits from the arcade and other consoles. From an outsider's perspective, these projects may have seemed like easy pickings, but for developers working with hardware that fundamentally dated back to the mid-Eighties, adapting the latest hits from more capable platforms often proved to be a headache.

"The Game Gear didn't have sprite mirroring, so you either had to store all the sprites facing left and right reducing your game size by 50%, or increase the size of your game cartridges by 50%," Dominic recalls. However, a bug with the system allowed him to mitigate this problem, "There was a delay when accessing the video memory which slowed down animation, so we used this extra time delay to mirror the data when the new animation frame was loaded, so, in fact, the issue with the system design could be utilised for good. Not everyone worked this out – I can remember visiting Sega Of America's studio that ran all their Game Gear projects and they hadn't worked it out, as they were storing all the *Sonic Spinball* graphics twice."

Some projects also proved to be rather more demanding than others, as Dominic remembers, "I converted *Lemmings*, which got something like 94% in the top mags. It was a very technical challenge having to replicate a destructible world created in a bitmap to a character based system. For every pixel that was added or deleted, I had to create a new customised character with limited

» The power light area is key to finding Majesco Game Gear consoles – if the logo is monochrome, it's Majesco.

» If your screen looks off, this contrast dial should solve your problem. If not, you've likely got faulty capacitors.

video memory, and when that ran out, I had to check for characters with only a few pixels and replace them with blanks to free up the memory. [It was] all very technical." While Sega's documentation and support for coders wasn't extensive, Dominic remembers the QA team being rather thorough, "A day before production, the Sega Of Japan QA team pointed out that the Lemmings should only test for collisions from their feet to waist and we had it going to their heads – no way could we change the code and then remake all the maps playable in 24 hours..."

The Game Gear's position as a machine which primarily hosted conversions and multiplatform releases also gave it something of a marketing problem. While existing Game Gear owners couldn't complain of not getting big-name software, the rarity of high-quality exclusives gave potential buyers little cause to pick up the machine. Game Gear advertising often glossed over the software line-up, instead focusing on the colour display. In North America, where Sega's marketing strategy was generally confrontational to begin with, the Game Gear advertising campaigns became particularly aggressive. Notably, Game Boy owners were portrayed as stupid – one particular TV spot depicted a Game Boy player hitting himself in the head with a dead squirrel in a futile attempt to see colour. "If you were colorblind [sic] and had an IQ less than twelve then you wouldn't care which portable you had," claimed a print ad which pictured the rival machines alongside a dog. "Of course you wouldn't care if you drank from the toilet either," it concluded. It was remarkable, in that Sega's previous anti-Nintendo advertising had focused on the opposing hardware – taking aim at the players themselves harder to swallow and it was, well, just mean.

> **"Sega struggled to match the universal appeal of Tetris"**

Still, the system had stabilised into its long-term market position. The Game Gear continued to receive solid support over the next few years and amassed a formidable library of well-known games – lots of *Sonic* titles, *Mortal Kombat*, *Micro Machines*, *Ecco The Dolphin*, *NBA Jam* and much more. In Japan, where the system had been having the most trouble, a software surge was observed in 1994 and 1995. This was in part due to increased first-party production and a little extra support from existing third parties, but also helped massively by the support of Acclaim, a market newcomer which provided as much software to the Japanese market as every other third party combined during those two years. Games such as *Garfield: Caught In The Act* were pushing the boundaries of the hardware by using large eight-megabit cartridges.

However, the Game Gear was beginning to near the end of its natural shelf life and the technology behind it, having been based on a 1985 design, was looking a little long in the tooth. If the machine had struggled with adaptations of Mega Drive games, it had no chance of coping with the 3D games that were becoming popular on home consoles – and if the Game Gear couldn't handle conversions, its reason for being was greatly diminished.

In Japan, a new approach was implemented to circumvent this issue, as both Nintendo and Sega were attempting to refocus their handheld platforms towards younger children during 1996. Nintendo's move came naturally, with the *Pokémon* phenomenon arriving in February and growing throughout the year. Sega's effort involved a rebranding, with the machine now promoted as Kid's Gear. This effort was kicked off with a special-edition console bundle featuring *Virtua Fighter Mini*, an ambitious version of the hit fighting game based on the TV anime of the time. However, the effort only lasted nine months as games such as *Puzzle Bobble*, *Panzer Dragoon Mini* and the *Pet Club* series failed to inspire an upturn in the system's fortunes. *G-Sonic*, known elsewhere as *Sonic Blast*, was the final game released for the system in Japan when it arrived in December 1996. Outside of Japan, the system was similarly dead. *The Lost World: Jurassic Park* arrived in August 1997 to coincide with the blockbuster film, but it was the system's only release of the year. ▶

BIG SCREEN, BIG PROBLEM

Why it's not easy playing Game Gear games on a TV

While the SNES, N64 and GameCube variously offer official and unofficial adapters which allow you to play Game Boy games on a TV, no equivalent existed for the Game Gear. This is in part because a similar technological approach wouldn't work – the Game Gear's colour palette is actually larger than that of the Master System and the Mega Drive, making an equivalent of the Super Game Boy impossible. However, those of you wishing for a big-screen game of *Factory Panic* shouldn't worry just yet, as there are two ways to go about getting your Game Gear games on the big screen. Unfortunately, neither is perfect.

Modifying the system for RGB video output is possible, and produces a crisp image, but one which occupies a small portion of the screen. An alternative is to recode Game Gear games to run on the Master System. This reduces palette options and requires either a flash cartridge or a reproduction, but results in a much larger field of vision in games such as *Sonic Triple Trouble* and *GG Shinobi*. This approach was used by TecToy to provide new Master System games for Brazil, but modders tend to have less luck in producing a smooth play experience.

» Game Gear cartridges are compact and feature a pronounced ridge, allowing easy removal from the system.

TURN ON, TUNE IN

The appeal of the system's flagship add-on

One of the most desirable add-ons for the Game Gear was the TV Tuner, a fantastic novelty which granted the ability to watch TV through your handheld console. It cost only a little less than buying a separate handheld TV, but instantly made you the envy of all your friends. Sadly, due to the rise of digital TV broadcasting, the TV Tuner is almost fully obsolete today, unless you happen to be visiting one of the countries still broadcasting analogue signals appropriate for your tuner's region settings. The result of this is that the accessory can now be acquired for a little under £10, a fraction of the high value it held for so long.

While the TV Tuner is no longer capable of its primary function, it's still possible to make some use of it as the rarely-used 3.5mm port on top of the device is actually a connector for AV cables. If you're in possession of the required adapter it's possible to use the Game Gear as a portable monitor for any device which outputs composite video. This means that it's entirely possible to run DVD players and camcorders through the Game Gear, as well as a wide variety of games consoles from the Master System and NES to the Xbox 360 and PlayStation 3. Just make sure you've got a lot of spare batteries on hand, and don't try it if you've got a Majesco-manufactured Game Gear – the TV Tuner is incompatible with the device.

That wasn't quite the end for the Game Gear, though, thanks to a company called Majesco. In the late Nineties, Majesco had established a healthy business relationship with Sega by licensing the Genesis hardware and keeping it available as a budget alternative to the PlayStation and N64. Attempting to repeat this success, Majesco acquired a licence from Sega to manufacture the Game Gear and reintroduced it to the North American market in 2001. The new hardware retailed at $29.99 and it featured some minor differences, including a monochrome logo, cheaper plastic and a slightly improved LCD screen. Ten games were made available, priced at $14.97 While all of the games were old developments, *Super Battletank* had never actually been released before and it became the final official release for the system when it accompanied the relaunched machine. Other original developments were also promised, but they failed to materialise.

> **"It was better to play with but that didn't equate to commercial success"**
> Dominic Wood

Since the device left the market, the main challenge for avid Game Gear collectors has been the high failure rate of the machine. Due to widespread problems with capacitors manufactured during the Game Gear's lifetime, the components used in the machine are prone to leaking causing a variety of problems including contrast issues and a loss of sound. While the problem can be fixed by those with soldering skills, there's a likelihood that if you find a Game Gear in the wild, it probably won't be working correctly. Thankfully for those of us that aren't technically inclined, there are people out there offering repair services.

The Game Gear has an unusual legacy. It was beaten by the Game Boy by a wide margin, for reasons Dominic sums up succinctly: "The power of Nintendo marketing and game IP, lower price point and longer battery life. The Game Gear was better to play with, but that didn't equate to commercial success." Its sales of 11 million, however, comfortably best any handheld not manufactured by Nintendo or Sony, and it achieved enough popularity to be supported fully for six years. On the other hand, it seems to receive rather less love than Sega's other machines despite similar contemporary popularity, and even Sega didn't think the machine worthy of a successor – its last entry into the handheld market being the Nomad, essentially another Mega Drive model. In part, this is because of the machine's role as a counterpart to Sega's non-portable machines. While the Game Gear has excellent exclusive software, much of its library consists of games which are available on Master System, or are cut-down versions of Mega Drive games. The machine also suffers from a reputation problem as its bulky frame and poor battery are still the butt of jokes.

However, the beauty of retro gaming is that our favourite platforms can be improved upon over time. Being a Game Gear fan today isn't the same experience as being a Game Gear fan back in the early Nineties. Battery life need no longer be a major concern, whether you choose to remedy that with a power supply or an LED backlight modification. Similarly, all of the exclusive software is documented and available, and the range of accessible games is growing thanks to the efforts of fan translators, who have made Japan-only games such as *Royal Stone* available in English.

So while the Game Gear has its detractors, it should be noted that it's by no means a bad machine – it's just one which suffered from the limitations of its time. We're sure that fans don't need to be told how much fun the machine can be, but if you've never tried the it, and you've been put off by the negativity, we'd urge you to take another look at the system. Its faults can be resolved, and its weaknesses can be improved on. Once that's sorted, you can enjoy the games that never received the recognition they deserve. ✱

» As well as regular AC cables, Sega offered battery packs and car adaptors to mitigate poor battery life.

MINIATURE MAKEOVERS

Five games that prove that Game Gear games weren't always identical to their Master System counterparts

OUTRUN

■ With the Game Gear version of *OutRun* arriving four years after the Master System version, the decision was made to start over and deliver a new version of the popular game. Graphics and music have been completely redone, an automatic transmission mode was added and there's an all-new rival race mode.

FANTASY ZONE

■ While the Master System game was closely based on the arcade version of *Fantasy Zone*, the Game Gear version diverged from it to introduce new enemies and stages. These do a great job of showing off the Game Gear's expanded colour palette, which makes it a far more cheerful-looking game than the Master System offering.

SPACE HARRIER

■ *Space Harrier*'s Game Gear conversion is an extremely weird one, offering fewer stages than its Master System counterpart and adding a password system in order to resume the game. All of the enemies have been redrawn to look more organic, too. An interesting oddity that completionists will certainly want in their collections.

NINJA GAIDEN

■ The Game Gear version of *Ninja Gaiden* was developed by Japan System House and released in 1991. It's competent but dull. For some reason, the 1992 Master System version was developed by SIMS. It was completely different and miles better. We're not sure why this happened, but we recommend sticking with the Master System original.

PUTT & PUTTER

■ SIMS developed both versions of *Putt & Putter,* and they're similar to look at and to play. However, the Game Gear version, which came out first in 1991, has a totally different set of levels to the Master System version released in 1992. It's another clear example that the Game Gear didn't suffer from as many Master System ports as gamers thought.

PERFECT TEN GAMES

It put up a brave fight for six years, but even Sega and Sonic couldn't stop the success of Nintendo's monochrome Game Boy. Console yourself with ten of the machine's best games

01

GUNSTAR HEROES

RELEASED: 1995

DEVELOPED BY: TREASURE

BY THE SAME DEVELOPER: IKARUGA

01 Now this is very impressive. It's obviously cut down when compared to the Mega Drive original, but this adaptation of Treasure's superb run-and-gunner is still utterly brilliant and is a must-own for anyone with a love of Sega's bulky handheld. Incredibly fast-paced and with some gob-smackingly good visuals, *Gunstar Heroes* shrinks down admirably well to the Game Gear's screen and offers an amazing amount of pyrotechnical wizardry. Gameplay is as intricate and as varied as ever, and it's further proof that Treasure is one of the most talented developers around. *Gunstar* is extremely hard to get hold of now, so expect to pay a pretty penny for it.

BAKU BAKU ANIMAL

RELEASED: 1996

DEVELOPED BY: IN-HOUSE

BY THE SAME DEVELOPER: OUT RUN

02 While *Columns* is the Game Gear puzzler that most gamers have probably heard of, it's the excellent *Baku Baku Animal* that deserves a little more recognition. Originally released in 1995, *Baku Baku Animal* plays like a cross between *Tetris* and *Puyo Puyo* and sees you stacking up a variety of different foodstuffs until the required animal comes along and clears the lot, thus setting up potential chain reactions and the possibility of huge scores. Combining instant accessibility and a compulsion to play that makes it nearly impossible to put down, *Baku Baku Animal* is one of the best puzzlers around and is perfectly suited to the Game Gear's on-the-go nature.

02

WONDER BOY: THE DRAGON'S TRAP

RELEASED: 1992

DEVELOPED BY: WESTONE

BY THE SAME DEVELOPER: WONDER BOY

03 *Wonder Boy*, like many other Game Gear titles, is basically a port of the Master System original. This should not put you off however, as *The Dragon's Trap* was one of the best games to appear on the 8-bit machine. *The Dragon's Trap* is a huge, sprawling adventure that sees the poor lad having to change into a variety of different animals after being cursed by the game's imposing dragons. It's going to cost you a fortune in batteries, but if you're looking for a solid adventure, you really won't find anything finer. Quite simply one of the Game Gear's finest moments. Even if it is just a glorified port.

SONIC THE HEDGEHOG 2

RELEASED: 1992

DEVELOPED BY: IN-HOUSE

BY THE SAME DEVELOPER: SONIC THE HEDGEHOG

04 While some gamers were less than happy with *Sonic 2*'s lack of difficulty there can be no denying that it's a highly polished title that deserves its place in this Perfect Ten. Featuring bold, bright visuals, a great sensation of speed and some faithfully reproduced tunes, *Sonic 2* is a wonderful adaptation of the original Master System and Mega Drive titles that plays to the strengths of its host machine and ends up working exceptionally well on the Game Gear's screen. There's some blurring that might spoil the experience for some, but old tech can't disguise the sheer amount of shine that lies beneath.

BUBBLE BOBBLE

RELEASED: 1994

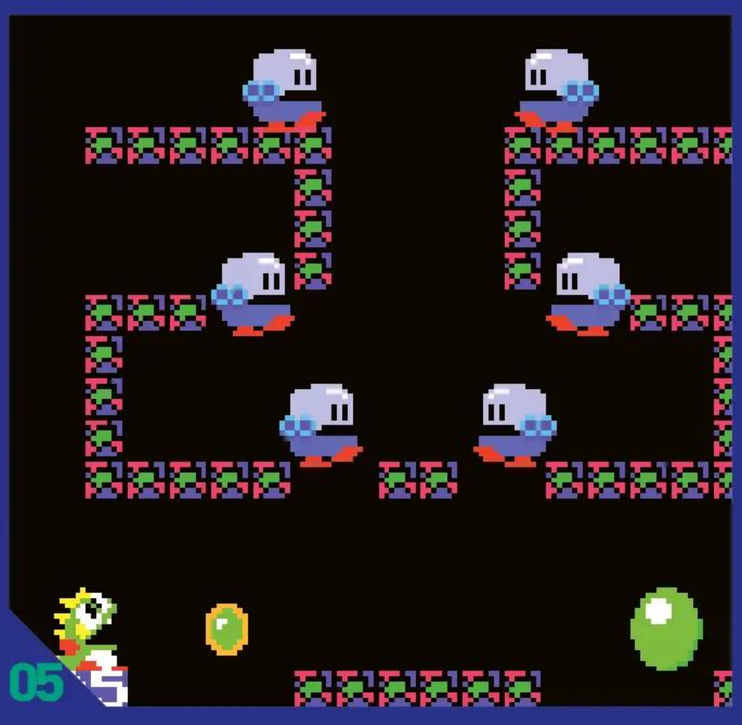
DEVELOPED BY: TAITO

BY THE SAME DEVELOPER: RAINBOW ISLANDS

05 Taito's *Bubble Bobble* must be one of the most ported games in history, but when you consider how good it is, it's unsurprising that so many platforms have featured a version of it. Based on the excellent Master System port, this Game Gear effort perfectly captures the charm of the arcade original and is another essential release for Sega's portable console. There's a cracking two-player mode, although you'll need the link-up cable and a second copy of the game. The graphics are as cute as ever, and the timeless gameplay endures. One of the best platformers ever made.

03

04



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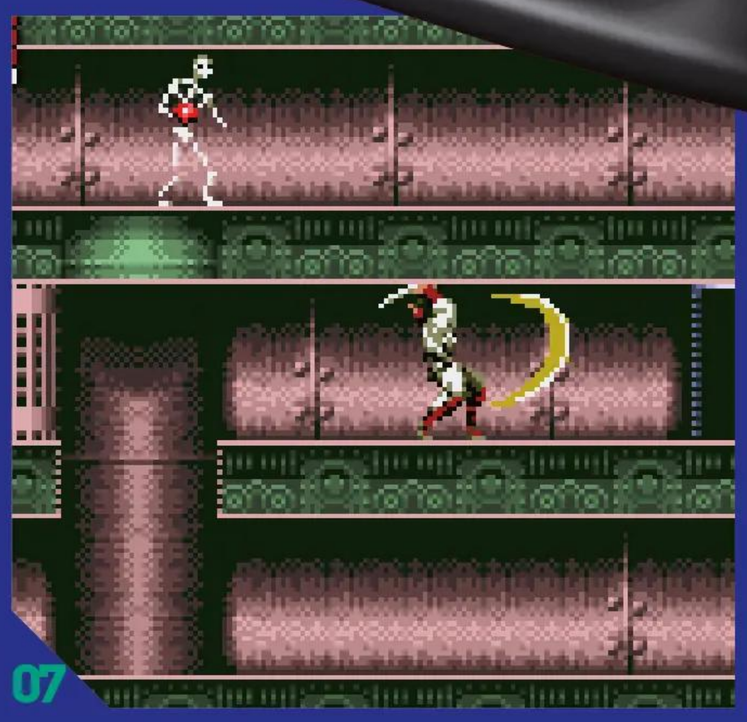
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08

STREETS OF RAGE 2

RELEASED: 1993

DEVELOPED BY: IN-HOUSE

BY THE SAME DEVELOPER: GG SHINOBI

06 There are very few beat-'em-ups on the Game Gear, but even if there were a hundred to choose from, it's doubtful that they'd match the quality of *Streets Of Rage*. From its meticulously created sprites, to the exhilarating combat, *Streets Of Rage 2* is a fantastic recreation of the Mega Drive original and proves that the Game Gear is more than capable of hosting a strong fighter. The music sadly lacks the polish of the original Mega Drive hit, but when you consider the technical limitations of the machine, this is hardly surprising. Just console yourself with a great fighter that plays as good as it looks.

GG SHINOBI II: THE SILENT FURY

RELEASED: 1992

DEVELOPED BY: IN-HOUSE

BY THE SAME DEVELOPER: SHINOBI III: RETURN OF THE NINJA MASTER

07 While the original is a classic slice of ninja heaven, the superior sequel improves on it in every possible way. You're still controlling a different selection of ninjas – after you've rescued them of course – but now the far tighter level design, faster flowing action and greatly improved gameplay mechanics make this Game Gear exclusive title even more desirable. It's also far more balanced than its predecessor – which was notoriously difficult in places – meaning it's the perfect place to start if you're looking for a solid action title or are brand new to the series. (Where have you been for the past 30 years?)

POWER STRIKE 2

RELEASED: 1993

DEVELOPED BY: COMPILE

BY THE SAME DEVELOPER: SUPER ALESTE

08 While the original *Power Strike* (or *GG Aleste* as it's known in Japan) was never released in the UK, the far superior sequel did make it here, and, as was typical of developer Compile, it was another excellent shooter. While it features similar gameplay to the Master System outing, visually it's been enhanced and boasts amazing sprites and awesome bosses, that are as ugly, as they are tough. With its mech theme, over-the-top explosions and hectic gameplay, *Power Strike 2* remains one of the best blasters on the device and makes us forget about the atrocities that were *G: LOC* and *Halley Wars*.

09

PRINCE OF PERSIA

RELEASED: 1992

DEVELOPED BY: BRODERBUND

BY THE SAME DEVELOPER: MYST

09 Like Taito's *Bubble Bobble*, *Prince Of Persia* seems to be another title that's been ported to practically every console and computer known to man. Based on the Master System outing, this is nevertheless a stunning conversion that features amazingly convincing animation, slightly more responsive controls and some simple, yet very effective visuals. Experts will obviously be expected to whizz through the game in under an hour, but *Prince Of Persia* has been put together with so much care and attention that you'll be more than happy to just languidly stroll around and drink in the superb level design while admiring the Prince's natty choice of clothing.

SHINING FORCE II: THE SWORD OF HAJYA

RELEASED: 1994

DEVELOPED BY: SONIC SOFTWARE PLANNING

BY THE SAME DEVELOPER: SHINING FORCE: FINAL CONFLICT

10 On the one hand you could feel rather cheated by *Sword Of Hajya*. Mainly because it's little more than a direct port of the second story that appeared on the Mega CD's *Shining Force CD*. On the other hand, it's the best RPG on the system to have received a western translation, so if you're a fan of the genre you really have precious little choice. It may look simple, and the bland backdrops and generic looking characters are certainly nothing to write home about, but with *Shining Force II* it's all about the story and the turn-based combat, both of which remain as good as on any other *Shining Force* adventure.

10

GAME GEAR HIDDEN GEMS

INTERESTING GAMES YOU'VE NEVER PLAYED

KISHIN DOUJI ZENKI

■ DEVELOPER: **SEGA** ■ YEAR: **1995**

■ **In the mid-Nineties, Sega seemed intent on refocusing the Game Gear's software line-up to appeal to kids, acquiring the rights to produce games based on a number of popular anime licences – *Yu Yu Hakusho, Magic Knight Rayearth, Saint Tail, Doraemon* and more.** *Kishin Douji Zenki* was part of this licensing drive, and while you might not have heard of it, its popularity in mid-Nineties Japan was unquestionable – the original 12-volume manga spawned a 51-episode TV anime adaptation, plus a short straight-to-video animated film and five videogames.

The team assembled for this adaptation was quite a talented one. Producer Katsuhiro Hasegawa was a Sega veteran whose previous work included *The GG Shinobi* and *Deep Duck Trouble*. Director Hisayoshi Yoshida had worked on *Sonic 3, Sonic & Knuckles* and *Legend Of Illusion*, and his planning partner Tadashi Ihoroi had experience on the 8-bit Sonic games *Sonic Chaos* and *Sonic Triple Trouble*. Given their experience, you won't be surprised to find that they put together a platform game to represent Zenki.

The game starts off with the titular character Zenki in his 'demon god' form, fighting in a short boss battle. This single-screen encounter gives both Zenki and his opponent life bars, and Zenki is able to select from four different attack moves – a fireball, a lightning spark, a dash and a tornado attack – by pressing the start button. After you win, you'll head off to the map to select one of the main action stages, but these boss encounters are frequent throughout the game.

In the main platform stages, you play as either a small version of Zenki, or his shrine maiden friend Chiaki. Zenki can attack enemies by curling into a ball, either when jumping or by performing a forward roll from a crouching position, while Chiaki can use her magical powers to shoot small flames or find single-use spell tags to summon lightning, wind or fire. These unique skills grant different paths through the stages, too – only Chiaki can defeat certain barrier enemies, while only Zenki is capable of breaking blocks from above or below. What's nice about the platform stages is that they're not just graphically attractive, but varied and interesting to play. Each has unique gimmicks – destructible floors, moving bars to hang from, and even alternative exits leading to new stages. Some stages are the usual left-to-right affairs, while others see you moving mostly vertically.

The game's presentation is top notch, too. The graphics are good for the Game Gear, and plenty of story cutscenes add to the atmosphere. The soundtrack by Saori Kobayashi is also good considering the limitations of the system's audio hardware. It's not the most inventive of games, and if you're a Game Gear fan you probably have a few good platformers already. However, it's an exclusive game for the system and a high quality one at that – not something you'll come across too easily on the Game Gear, so it's worth the price it sells for.

» [Game Gear] Boss fights are the only stages to feature Zenki in his 'demon god' form, the most combat-oriented character in the game.

» [Game Gear] The animation in *Kishin Douji Zenki* is rather nice – just look at the detail as Chiaki drops in from above.

IF YOU LIKE THIS TRY...

KISHIN DOUJI ZENKI FX: VAJURA FIGHT

PC-FX

■ Renowned as one of the best games for the ill-fated system, this take on the Zenki story has a far greater focus on combat, with short beat-'em-up sections and lots of bosses to fight. The production values and sprite work are amazing, but it fetches sky-high prices.

KISHIN DOUJI ZENKI: BATTLE RAIDEN

SNES

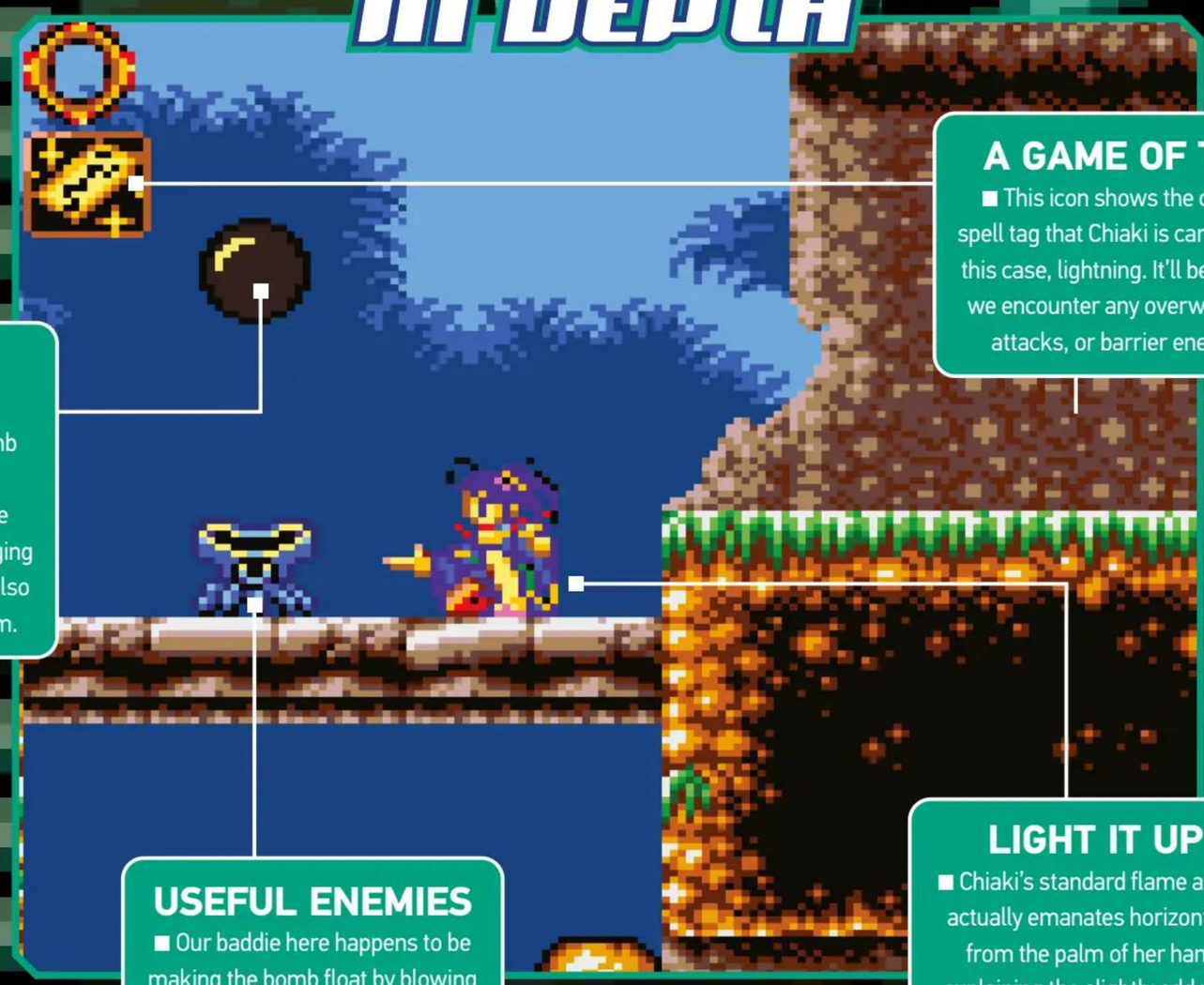
■ This *Zenki* game features more combat moves than the Game Gear game, and much more in the way of platforming than the PC-FX game. It's a pretty standard action platformer on a format not short of them, but it's worth playing just for the sublime background graphics.

SHINOBI II: THE SILENT FURY

GAME GEAR

■ If you're just looking for a really good Game Gear platform game, it's hard to go wrong with this one. The first four stages each hide a new ninja with different coloured outfits and abilities, and can be chosen in any order, before a fifth and final stage is unlocked. Yuzo Koshiro's soundtrack is ace, too.

IN DEPTH



A GAME OF TAG

■ This icon shows the current spell tag that Chiaki is carrying – in this case, lightning. It'll be useful if we encounter any overwhelming attacks, or barrier enemies.

DA BOMB

■ This floating orb happens to be a bomb – after a while it'll start flashing before detonating and damaging you. However, it can also be used as a platform.

USEFUL ENEMIES

■ Our baddie here happens to be making the bomb float by blowing it upwards. If we kill it, the bomb will drop and destroy the ground below, opening up a new route.

LIGHT IT UP

■ Chiaki's standard flame attack actually emanates horizontally from the palm of her hand, explaining the slightly odd pose she's adopted in this screenshot.

NINKUU GAIDEN: HIROYUKI DAIKATSUGEKI

■ PUBLISHER: **SEGA** ■ YEAR: **1995**

■ ***Ninkuu* was quite a popular franchise back in the mid-Nineties – not only did the series jump from manga to anime and even videogames, but the games were popular enough to generate this spin-off.** Sensing the potential to revive a classic game design, Sega cast the main character Fuusuke's pet penguin Hiroyuki in a game that bears more than a passing resemblance to the old arcade hit *Pengo*. You still walk around a maze of blocks, kicking them at enemies in an attempt to crush them, and even the diamond blocks and associated bonuses are back. But this time there are more enemies with new behaviours, bumper blocks for moving ice to bounce off of, and instead of the wall kick Hiroyuki is able to stun enemies with his terrible flatulence. (Yes, really.)

There's a bit more to it than just that, though. What really elevates the game above *Pengo* is the additional stage types – the new puzzle stages require you to arrange ice blocks into a predetermined pattern, and each set of stages concludes with a boss battle. These are particularly dangerous, as the supply of kickable blocks are replenished throughout the fight in a deadly fashion – they're dropped in from above, potentially squashing poor Hiroyuki. If you happen to be able to read Japanese, there's also a story to follow.

Ninkuu Gaiden isn't just a more compelling game than the original Game Gear conversion of *Pengo*, it might actually be the best take on the game overall – and that's including the Mega Drive version, which sells for many times the price of this overlooked gem. The only downside is that there's no more Popcorn theme, but we think that's a pretty small price to pay.

» [Game Gear] All of the ice blocks must be placed in the marked 4x4 area, which requires sensible sequencing.

» [Game Gear] Hiroyuki has achieved his goal here, squashing a baddie between two ice blocks.

MORE GAMES TO PLAY

» AA HARIMANADA

■ DEVELOPER: **SEGA**
■ YEAR: **1993**

■ If you're bored of *Mortal Kombat II* and *Fatal Fury Special*, this sumo game offers a different take on fighting that proves to be pretty compelling. The big thing here is that you can lose with a full life bar – as well as being knocked out by palm strikes and head-first charges, your opponent can also push you out of the ring and throw you to the mat. It's a tad easy once you understand it, but well worth investigating.

» BERLIN NO KABE

■ DEVELOPER: **KANEKO**
■ YEAR: **1991**

■ This arcade game, known outside Japan as *The Berlin Wall*, has largely been forgotten – perhaps because this Japan-only release was the only home conversion it received. It's a rather cute single-screen platformer in which your goal is to trap enemies by knocking out floor blocks, then bop them with your hammer to get rid of them. There's even link cable support, for those occasions when you find fellow Game Gear players.

» BISHOUJO SENSHI SAILOR MOON S

■ DEVELOPER: **S-PLAN**
■ YEAR: **1995**

■ Basing a platform beat-'em-up on this anime series was a good call, as the licence is perfect for this purpose. Combat and platforming are simple, with the former resembling *Kung Fu Master* with a few extra moves, but the game is attractive and minigames are present to break up the action. The lack of difficulty is unfortunate, but fans of the series will likely have a good time with it regardless.

» DUNK KIDS

■ DEVELOPER: **SEGA**
■ YEAR: **1994**

■ This two-on-two street basketball game was actually endorsed by the All Japan Street Basketball Association, an organisation we'd never heard of before. It's prettier than the other basketball games on the system, with some well animated cartoon players doing their thing on the half court. It dunks on *NBA Action* all day long and is just as much fun as *NBA Jam* for the Game Gear, so see if your skills cut it in the streets.

BUSTER BALL

■ PUBLISHER: **RIVERHILLSOFT** ■ YEAR: **1992**

■ **For some reason, *Speedball 2* never made the jump from Master System to Game Gear, meaning that Sega fans on the go had to look elsewhere for their fix of future sports action (or just buy a Master Gear converter, we suppose).** While this alternative doesn't quite match up to the Bitmap Brothers' classic, it's not too bad. The aim of the game is familiar, as you need to take a ball and shoot it into the goal, which lies at the end of a pitch strewn with bumpers. Your robots can tackle opposing robots to steal the ball, and dealing enough damage will temporarily disable them.

However, there are quite a few differences on offer here. For a start, the pitch is divided into different sectors by impassable electrical barriers, so the ball must be shot over those. Then there are the gimmicks like pitch areas that will speed up or slow down your robotic players, which change location depending on which of the six stadiums you choose to play in. Lastly, scoring is determined by how long you charge your shot before releasing it towards goal.

The major problem with this game is that the standard time limit is definitely too long, so you'll want to reduce it to avoid boredom setting in. If you do that, this should be a fun and frantic game – and if you can blackmail a Game Gear-owning friend into buying a copy, you can even play it together.

» [Game Gear] Just past the area barrier, those red and blue areas will slow you down and speed you up respectively.

» [Game Gear] The zone containing the goal is the most chaotic area of any pitch thanks to a surplus of bumpers.

RETRO SUNKEN

» KENYUU DENSETSU YAIBA

■ SEGA ■ 1994

■ This sword-swinging platformer is just too frustrating, thanks to enemies suddenly teleporting into play and a lack of post-hit invincibility.

» FRAY: SHUGYOU HEN

■ DEVELOPER: **MICRO CABIN**
■ YEAR: **1991**

■ If you're familiar with the *Xak* series of Japanese RPGs, you'll know Fray as a trainee sorceress. This action spin-off pits you against enemies in a top-down world with forced vertical scrolling. Unlike most games of this type, you'll need to jump over pits as well as keep an eye on the enemies attacking you. There's a bit of dialogue that you'll miss if you don't speak Japanese, but nothing that will ruin the game for you.

» GRIFFIN

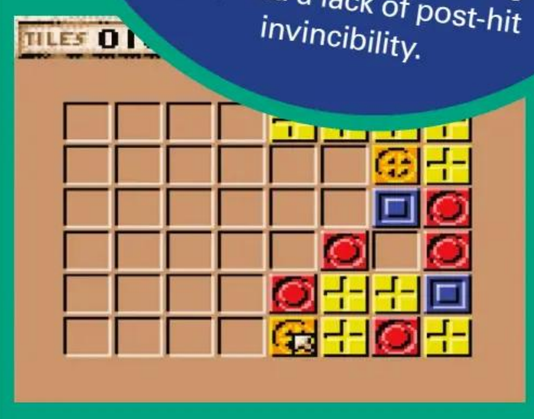
■ DEVELOPER: **TELENET JAPAN**
■ YEAR: **1991**

■ *Griffin* is mostly a run-and-gun in the style of *Commando*, but you're in a tank instead of on foot. The difficulty level jumps up quite quickly thanks to an irritating plane mid-boss, but the enemies are varied, the boss designs are pretty cool and you even take to the air in one stage. Sadly, it's a little bit on the short side – there are only four stages to blast through, although you do need to beat a second loop to see the proper ending.

» POPEYE BEACH VOLLEYBALL

■ DEVELOPER: **TECHNOS**
■ YEAR: **1994**

■ This is a bit of an odd licensed game – what's the connection between the sport and the cartoon? Still, Technos did make it work, with each of Popeye's opponents having a unique skill used to disrupt play. You'd be surprised at just how difficult this game is as a result – but, thankfully, you can recruit these players to your team upon beating them, replacing Olive Oyl and the incredibly useless Mr Wimpy.



» TESSERAE

■ DEVELOPER: **EUROCOM**
■ YEAR: **1993**

■ Tile-based puzzlers are a staple of any handheld gaming platform, and this forgotten Mac conversion is a good one. Your goal is to remove tiles from the board by flipping over them, while avoiding landing on tiles of a different colour, which creates combination tiles that are difficult to remove. Things start off simple, but with ever more complex stage shapes and increasing numbers of combination tiles, it soon gets tricky.

Nomad

» **MANUFACTURER:** Sega » **YEAR:** 1995
» **COST:** £229.99 (launch), £200+ (today, unboxed)

Approaching the mid-Nineties, Sega designed an ambitious new console to solve the problem of having two declining platforms in the market. Code-named Venus, this handheld would succeed the Game Gear, while retaining its design principle of leveraging existing home hardware. But rather than being a reworked version of the Mega Drive, as the Game Gear had been based on the Master System, this console would simply be a Mega Drive – compatible with existing software, and even certain peripherals. It could even output to a TV. The console would therefore launch with a library of hundreds of games and enjoy a considerable technological advantage over other handhelds.

The Nomad, to give it its final name, was similar to the Game Gear in many ways – it was rather chunky, especially with a large cartridge and bulky detachable battery compartment protruding from the system. Its LCD screen was similarly not great in motion thanks to a ghosting effect, and once again, that backlight for the screen made it very battery hungry. The high initial price didn't help, but even a $100 price drop didn't make the Nomad sell amazingly well, ensuring that it became prized by collectors in the years that followed. *

ESSENTIAL GAME
Dr Robotnik's Mean Bean Machine

Every handheld console needs a great puzzle game to go with it, and normally we'd pick *Puyo Puyo 2* for the Mega Drive. However, since we need to stick to North American releases for an unmodified console, this rebranded version of the classic competitive game is the one to go for. Since all of the gameplay takes place on a single screen, the ghosting problems of the stock LCD screen are minimised, and the password feature added to this game allows you to power off and resume a session later – crucial on any handheld, but especially one with limited battery life.

Nomad fact

■ The Nomad was released solely in the North American market, and the console identifies as an American machine for cartridges that contain region-locking software.

PROCESSORS: MOTOROLA 68000 16-BIT CPU (7.67 MHZ), ZILOG Z80 8-BIT CPU (3.58 MHZ)

RAM: 64KB MAIN MEMORY, 64KB VIDEO MEMORY, 8KB AUDIO MEMORY

GRAPHICS: SEGA/YAMAHA YM7101 VDP, UP TO 320X480 DISPLAY (320X224 TYPICAL), 64 COLOURS FROM A PALETTE OF 512, 80 SPRITES ON SCREEN

AUDIO: YAMAHA YM2612 SOUND CHIP, SIX FM SYNTHESIS CHANNELS, PLUS TEXAS INSTRUMENTS SN76489 FOUR CHANNEL PSG

MEDIA: MEGA DRIVE ROM CARTRIDGE (UP TO 32 MEGABIT)

game.com

Much is written about the winners of each generation's console wars. But what of the losers? They, too, have equally interesting stories and deserve a page in the history books. With that in mind, Ashley Day looks at one of the game industry's biggest losers

The history of handheld gaming has been defined by one simple truth: no one can stop Nintendo. Great industry legends like Atari, Sega, Sony and SNK have all tried and all failed to scale the same heights as the Game Boy and Nintendo DS. The story of the Tiger Game.com is no different.

Timing is one of the most important factors in any product launch, and Tiger Electronics must have considered September 1997 as its own window of opportunity for the handheld market. By that time, the Game Boy was eight years old and looking a little long in the tooth, while its main competitors, the Atari Lynx and Sega Game Gear, had died off a couple of years previously. There was an opening in the market and Tiger, a western company with extensive experience in electronic games, was poised to take advantage of the market gap.

For many years previously, Tiger had enjoyed great success in the toy market with its pocket LCD games, which offered simple distractions on the go. And just as Nintendo took what it had learned with Game & Watch and transformed it into an interchangeable cartridge system, Tiger looked to do the same and take its handhelds to a new stage of evolution.

Dubbed Game.com (with a silent dot), Tiger's handheld was named to take advantage of the explosion in popularity of the internet at the time and hoped to create an association with cutting-edge technology that would leave the Game Boy looking outdated by comparison. Pitched somewhere between a PDA and a games machine, it offered potential users both serious applications and play, with some truly innovative features. The most obvious of these was the touchscreen and stylus, which was way ahead of its time some seven years before the launch of the Nintendo DS. The system also boasted on-board memory with four built-in pieces of software comprising a calendar, calculator, phone book and solitaire game, all of which used stylus

» The Game.com had the support of popular licensed properties, but it wasn't enough.

control. In addition, the unit featured the unusual addition of two cartridge ports that could be switched between without powering down, and the enticing promise of online functionality with separately sold software.

When it came to games, Tiger knew it couldn't compete with the likes of *Mario* and *Zelda* superstars of Nintendo's world, so wisely it decided to play to its own strengths by leveraging its own intellectual properties and publisher relationships. Its own line of handheld games as well as its experience of licensed properties meant that it could create a wealth of software based on instantly recognisable names, as demonstrated by its two pack-in titles: movie licence *Batman & Robin* and *Lights Out*, an adaptation of one of Tiger's most popular handheld games.

In terms of specifications, the Game.com was a mixed bag. Its monochrome screen was outdated and suffered from blurriness, while the reliance on four AA batteries was less than economical, but there was some impressive hardware to be found under the casing. The Game.com's processing chip was a proprietary Sharp SM8502 that handled every function of the portable, including sound, visuals and touchscreen input, and was, according to Tiger's contracted game programmer, Thomas Fessler, capable of performance speeds up to eight times faster than the Game Boy's Zilog Z80 CPU.

"The major advantage to this design," says Game.com homebrew enthusiast Jason Oster, "is that the hardware was much less complex, and therefore easier to manufacture at a reduced cost." Furthermore, each game cartridge could be up to 16 megabits in size compared to the Game Boy's maximum of 12 megabits, while the screen offered five shades of grey in comparison to the Game Boy's four. Jason adds: "Game.com's proprietary MCU, the Sharp SM8502, had limited support for PCM wave output, which made it good at speech sampling," which Tiger proudly boasted on the box and was easily heard, along with some excellent music, in many Game.com games.

"Overall, from a developer's standpoint, the Game.com is a very powerful machine," claimed Thomas Fessler in a 1998 internet chat. "But with all new systems, it takes time for developers to learn how to use it to its fullest potential." A fact that was brutally apparent from day one. Pack-in game *Batman & Robin* looked brilliant on paper. It had

SPECIFICATIONS

Year released: 1997

Original price: $69.95

Main Processor:
Sharp SM8502 MCU

Dimensions: 190x108x19mm

Screen: 192x160 resolution, 12x10 grid touch sensor

Colours: Five shades of grey

Sound: 8-bit PCM and FM synthesis

INSTANT EXPERT

The dot in '.com' is silent. So Game.com is actually pronounced 'Game Com' in speech.

The Game.com pioneered many features. It was the first handheld games console to have a touchscreen, internet capabilities and two cartridge slots.

It remains the only handheld to feature two cartridge slots. Although Nintendo's DSi prototype had two, it decided to remove one to keep the unit size down.

Despite its failure, Tiger's Game.com was not the last monochrome handheld released. SNK's Neo Geo Pocket followed in 1998 and the Bandai WonderSwan came in 1999. Both featured black-and-white screens before being hastily relaunched in colour in the wake of the Game Boy Color.

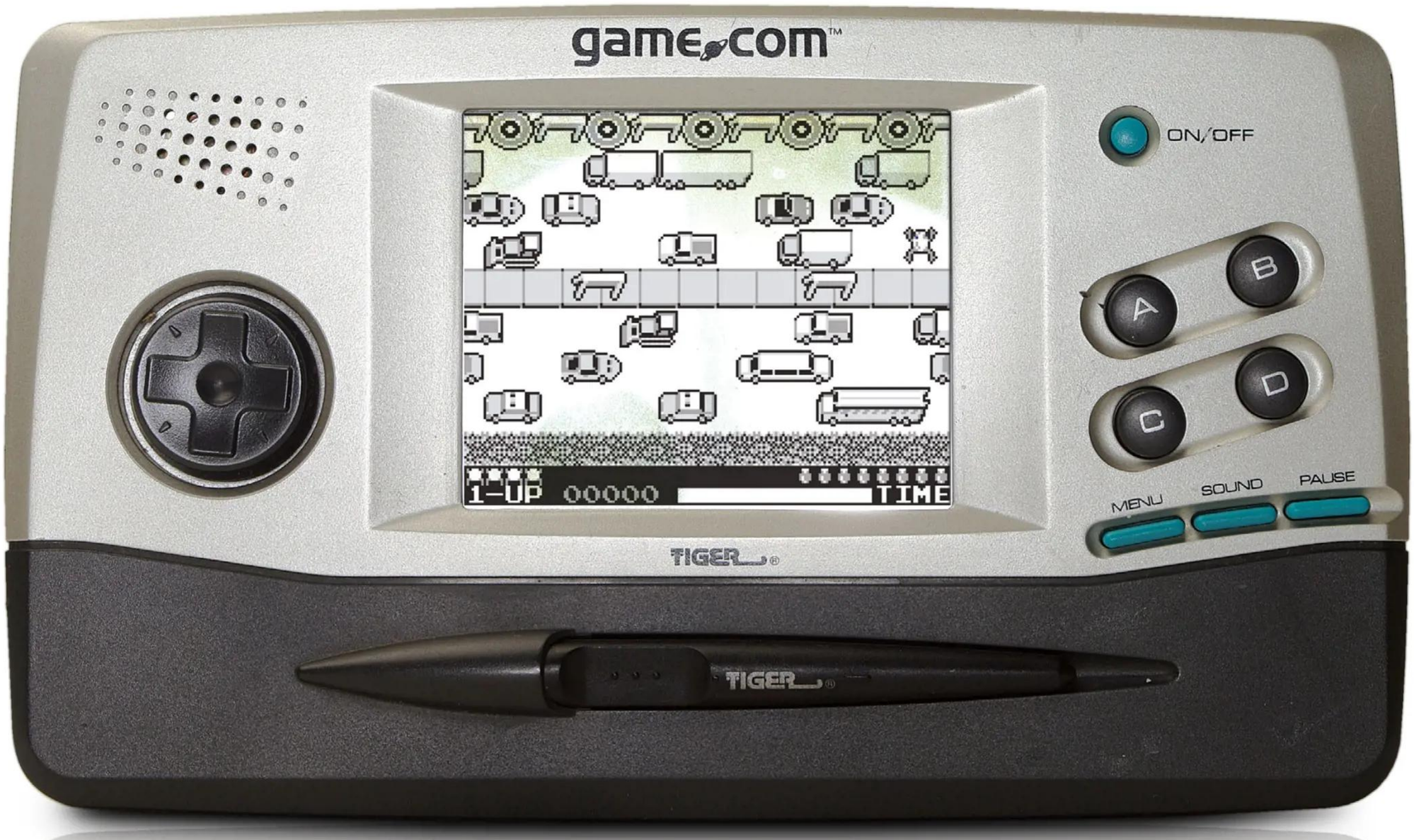
Footage of the abandoned *Metal Gear Solid* port was reportedly distributed to alt.games.video.tiger.game-com users in 1998, but the full development build hasn't been seen since.

Future retro collectors be warned: the Game.com's internal calendar will only work up until December 2099. It's like the millennium bug all over again, except no one will care this time.

Search Hasbro's website and you'll find that it still has PDFs for a few Game.com game manuals available.

The Game.com Pocket Pro was briefly re-issued minus the front-lit screen and available in four different colour casings.

The console was actually Tiger's second handheld after the R-Zone – a unit similar to the Virtual Boy that projected LCD images onto a mirror to create a hologram effect.



Modem
Connect your game.com to text-based Internet and email services with this 14.4k modem. Internet Cartridge (available separately), phone line (not included) and subscription to an Internet Service Provider (not included) required. No computer needed!
71-782
Headphones
The perfect way to enjoy all the ear-blasting action of your favorite games without disturbing anyone else. These highly portable, high-tech headphones feature a standard jack that fits most audio equipment.
71-785
AC Adapter
When you're home, conserve batteries with this plug-in adapter. Standard adapter fits many appliances.
71-784
ACCESSORIES
27

» Modems, power supplies and link cables were all available put so poorly stocked that many believed they never existed.

huge sprites, detailed backgrounds and arcade-style action, but the poor refresh rate of the LCD meant that the game was reduced to a blurry mess as soon as anything moved. *Lights Out*, the second pack-in, was a puzzle game with zero animation and consequently didn't suffer from the same display problems. This presented Game.com developers with a real dilemma. Should they make impressive games that would look brilliant on the back of the box but disappoint the buyer once they played the thing? Or should they play to the handheld's strengths and produce simple but playable games that don't as easily jump off the shelves? It would take Tiger Electronics well over a year to find the answer, at huge cost to the Game.com's credibility.

Hardware capabilities weren't the only problems facing Tiger, either, as the company found its previous success in LCD games had become as much a curse as a blessing. In a letter posted at the alt.games.video.tiger.game-com newsgroup on 17 June 1998, Tiger directly addressed its fans' concerns over the availability of games with the following explanation: "Game.com has had a tough time establishing a strong presence at retail. This is largely because it originates from Tiger, which is a toy company, not a videogame company per se. As a result, many retailers have chosen to merchandise Game.com as a toy – not as the strong vid game system it is. Because Tiger's traditional toys don't come in 'multiple parts' (such as a system and carts), retailers haven't been mindful of the big picture, and carts have tended to languish in distribution centres instead of making their way to store shelves next to hardware."

Tiger's decision to develop every Game.com title in-house had also proved something of a double-edged sword. Without third-party support, the catalogue of software would be severely limited, but Tiger hoped to offset this by licensing properties from other publishers. As well as working with big movie and TV IPs, Tiger also established deals with the likes of Sega and Capcom so that it could produce its own versions of popular Saturn and PlayStation games like *Fighters Megamix* and *Resident Evil 2*. Licences gained for Tiger's standalone LCD handhelds also proved invaluable, as the rights to create games based on Sega's *Sonic* property allowed Tiger to produce *Sonic Jam* for the Game.com without too much legal difficulty. The insistence on developing everything in-house or with contracted staff, however, slowed down production of new games significantly, and many titles suffered painful delays while the most hotly anticipated games like *Castlevania* and *Metal Gear Solid* never made it to shelves. Licences also proved troublesome, as Tiger had to occasionally work to the inconvenient schedules of external companies. An *X-Files* game, for example, was planned at one stage, but Fox requested that development of the game be postponed until the movie was complete, by which time Tiger had moved on. Likewise, a planned *Godzilla* game was abandoned following a licensing dispute that pulled the rights away from all of Tiger's toy divisions. The Game.com catalogue, it seemed, could be damaged by association with Tiger's portfolio as well as benefit from it.

game.com
Tiger Web
Link your game.com system to you
the game.com Web site -- it's a to
dimension in portable gamin
game.com
game.com
INTERNET
Link your game.com system to text-based Internet and email services.
Contains communications cart and cable. Also required (not included):
• 14.4 (or faster) modem
• Subscription to an appropriate Internet Service Provider (subscription information included)
• game.com system
Here's how it works:
1. Insert the Internet cartridge into slot #1 on your game.com.
2. Plug one end of the cable into the communications port.
3. Plug the other end of the cable into an external 14.4 (or faster) modem (not included).
4. Plug the modem into your telephone line.
5. Turn on game.com.
6. Select CARTRIDGE.
7. You can join Delphi, the recommended Service Provider, by touching JOIN DELPHI on the screen (subscription required; see details inside).
8. Alternatively, you can connect to any other Service Provider you subscribe to which supports text-based connections.
9. Use the keyboard on the screen to surf the Web or to send/receive email to/from ANY email address in the world.
10. It's easy to hook up; easy to use!
game.com
TIGER

DotCom.com

■ The Game.com, rather confusingly, had two cartridges that enabled online functionality. Here's the difference: the first, known as the Internet Cart, granted access to the web as long as you connected the machine to an external modem. Functionality was limited, however, as it would only work with text-based ISPs and websites. AOL, America's most popular ISP at the time, was totally incompatible. The second cart was known as Web Link and actually allowed you to connect your console to a PC and transfer data between the two. If the PC was connected to the net then you could upload your high scores to Tiger's website for all to see or download exclusive cheat modes for certain games. Game.com fan Steven Cox recalls the difficulty of using the device: "The Web Link cartridge was not user-friendly at all. A fun toy for tech geeks like myself, but I can only imagine how many kids picked one up – well, probably not that many kids – and outright failed to make it work with their dial-up ISP." Online play was never enabled, but a Tiger representative did once say that it was trying to get it to work by using a slow game, like an RPG, while also improving the transfer rate of the carts. Sadly, the Game.com's commercial life came to an end before such experiments bore fruit.

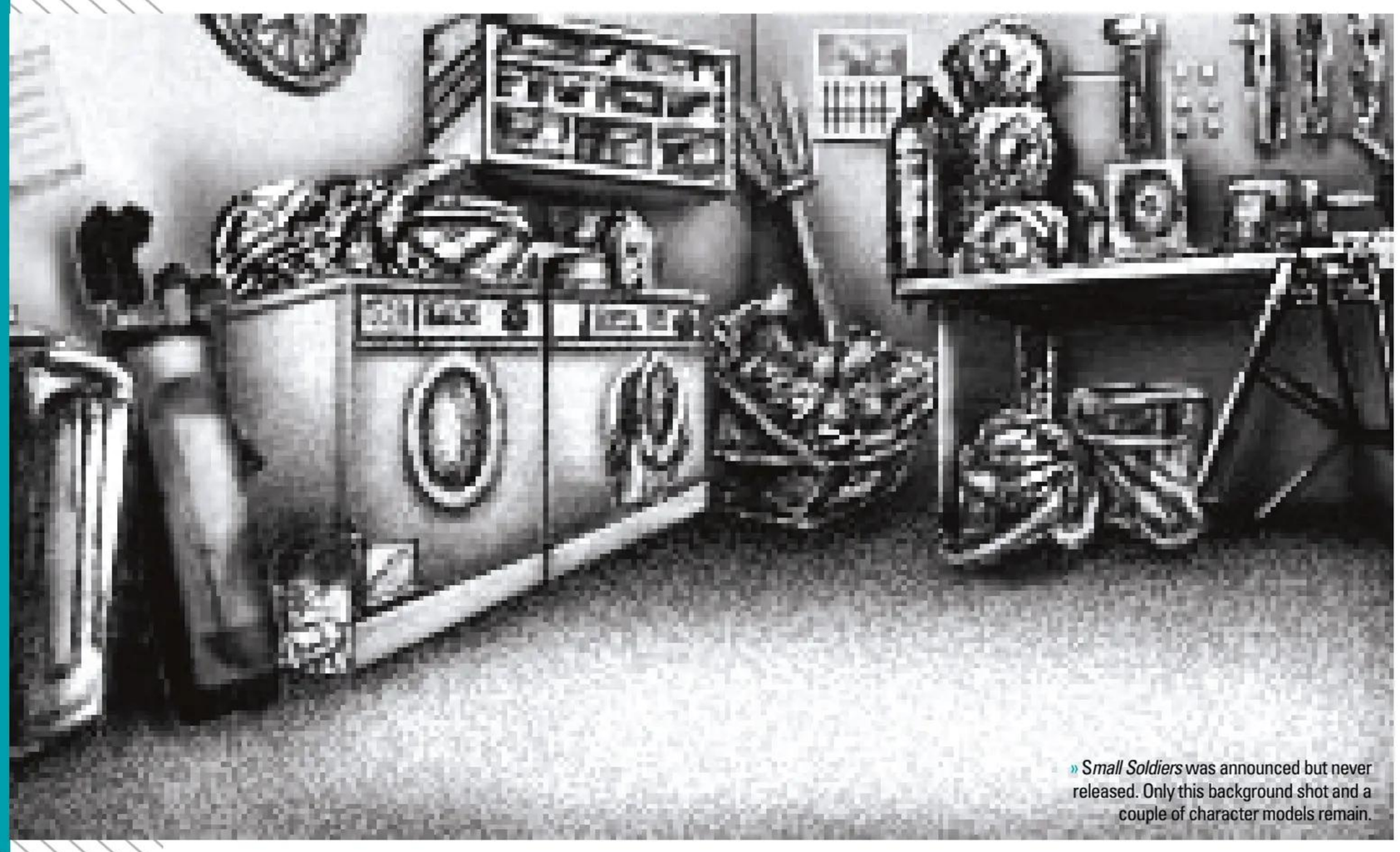
If business was a struggle for Tiger in 1997, then 1998 was a true hardship. This was the year that Nintendo fought back – and in aggressive style. The Game Boy Color was launched and though it was technically inferior to the Game.com, its colour screen and exemplary refresh rate made it much more palatable to consumers. And let's not forget the worldwide release of *Pokémon* that year, which created a media phenomenon and even helped the humble black-and-white Game Boy to enjoy a second lease of life.

Tiger Electronics needed to improve the Game.com and quickly, and at E3 that year it announced the Pocket Pro, a hardware variation of the Game.com that it hoped would keep the business going. The Pocket Pro improved on the original model by reducing the required number of batteries from four to two, reducing the size and weight of the device at the cost of one cartridge slot, and adding a new front-lit screen with a far better refresh rate, comparable to that of the excellent Game Boy Pocket. Tiger also announced its first original IP for the Game.com, an RPG called *Mutoids* that was said to play like *Pokémon* and would allow Game.com owners to link up and do battle with each other and even link up to a new line of electronic keychain games called Mutoid Giga Fighters – a particularly innovative way for Tiger to take advantage of its diverse toy range to help boost the Game.com's potential.

Not only was *Mutoids* a smart way to compete with the *Pokémon* boom, but it was also an experienced solution to the Game.com's performance problems – a killer app that, as an RPG, didn't have too much animation and therefore didn't cause the screen to blur during critical moments. It had taken a while, but Tiger was finally learning which games worked best on the system and which didn't, and you could see the results in the later batch of releases. *Resident Evil 2* may have been an ambitious conversion, but it was also a much slower-paced game than your average action title, and its lumbering zombie enemies were perfect for the Game.com's motion-averse screen. Tiger was beginning to pick its licences much more carefully with these issues in mind, and later releases like *Monopoly*, *Jeopardy!* and *Frogger* were much better suited, showing that board games, TV shows and retro games could be perfect for the Game.com as long as the brand name was familiar enough to reel customers in.

» [Game.Com] The Game.com's GUI gave instant access to all the in-built features and any cartridges that were inserted.

Sadly, Tiger's new strategy was too little and too late to save the Game.com. The Pocket Pro was a marked improvement over the original model, but it still looked pathetic next to the Game Boy Color. Retailers continued to position the device poorly and not stock the full range of software, and specialist games magazines rarely, if ever, covered the system, leading to a critical lack of awareness among core gamers. The reputation of the handheld was still tarnished by the original model and lacklustre launch titles, making consumers reluctant to take a chance on the superior releases of late 1998. ▶



» *Small Soldiers* was announced but never released. Only this background shot and a couple of character models remain.

Only 20 games were released for the Game.com, and although most were junk, a **small minority** is worthy of note

01. FROGGER
A great classic arcade game that's almost done brilliantly on the Game.com. Only the blurry snakes let the conversion down.

02. BATMAN & ROBIN
Standard platform/action fare based on the notoriously terrible George Clooney movie. The action's good, but the visuals are so blurry that it borders on pointless.

03. CENTIPEDE
A crisp and clean remake of the arcade original. Not entirely faithful, but just as much fun to play. One of the better score-attack games out there.

04. DUKE NUKEM 3D
This isn't quite the FPS it appears to be in stills. The game moves along one tile at a time, like *3D Monster Maze*, and you can't really aim the gun.

05. FIGHTERS MEGAMIX
Lacks the full complement of characters as seen in the Saturn original. And if the full move list is there, it feels impossible to pull off.

06. INDY 500
A '3D' racing game that has more in common with a simple LCD game than anything on consoles. Great speech, poor gameplay.

07. JEOPARDY!
This classic TV show should work great on the Game.com, but there usually isn't enough time to tap the answers in on the touchscreen.

08. THE LOST WORLD: JURASSIC PARK
An action-adventure game with multiple gameplay modes, including driving, platform and so on. The objectives are often confusing and the graphics suffer from blur.

09. HENRY
Henry is a 'concentration'- based solitaire game with a twist. Instead of matching cards with pictures, you match audible sounds. A great idea, done well.

10. MORTAL KOMBAT TRILOGY
It might suffer from the blurs, but *MK Trilogy* does at least play well and has loads of features. It's miles better than any *Mortal Kombat* on the Game Boy, too.

11. MONOPOLY
The board game's turn-based gameplay and simple animations are well suited to the Game.com, but a standard game can drag on longer than some batteries last.

12. QUIZ WIZ: CYBER TRIVIA
A *Trivial Pursuit*-style quiz game with its own virtual host. Falls flat due to boring questions and the annoying, unfunny host. *Buzz*, this ain't.

13. SCRABBLE
Another game that should work great on the Game.com and… actually does. The touchscreen is used especially well for moving tiles.

14. SONIC JAM
Four great Mega Drive games on one cartridge should be reason to celebrate, but *Sonic*'s speed and the Game.com's blurry screen do not make good bedfellows.

15. RESIDENT EVIL 2
It shouldn't work, but it really does. Not an accurate adaptation, but as close as you could get in 1998 and something that the Game Boy never managed to do.

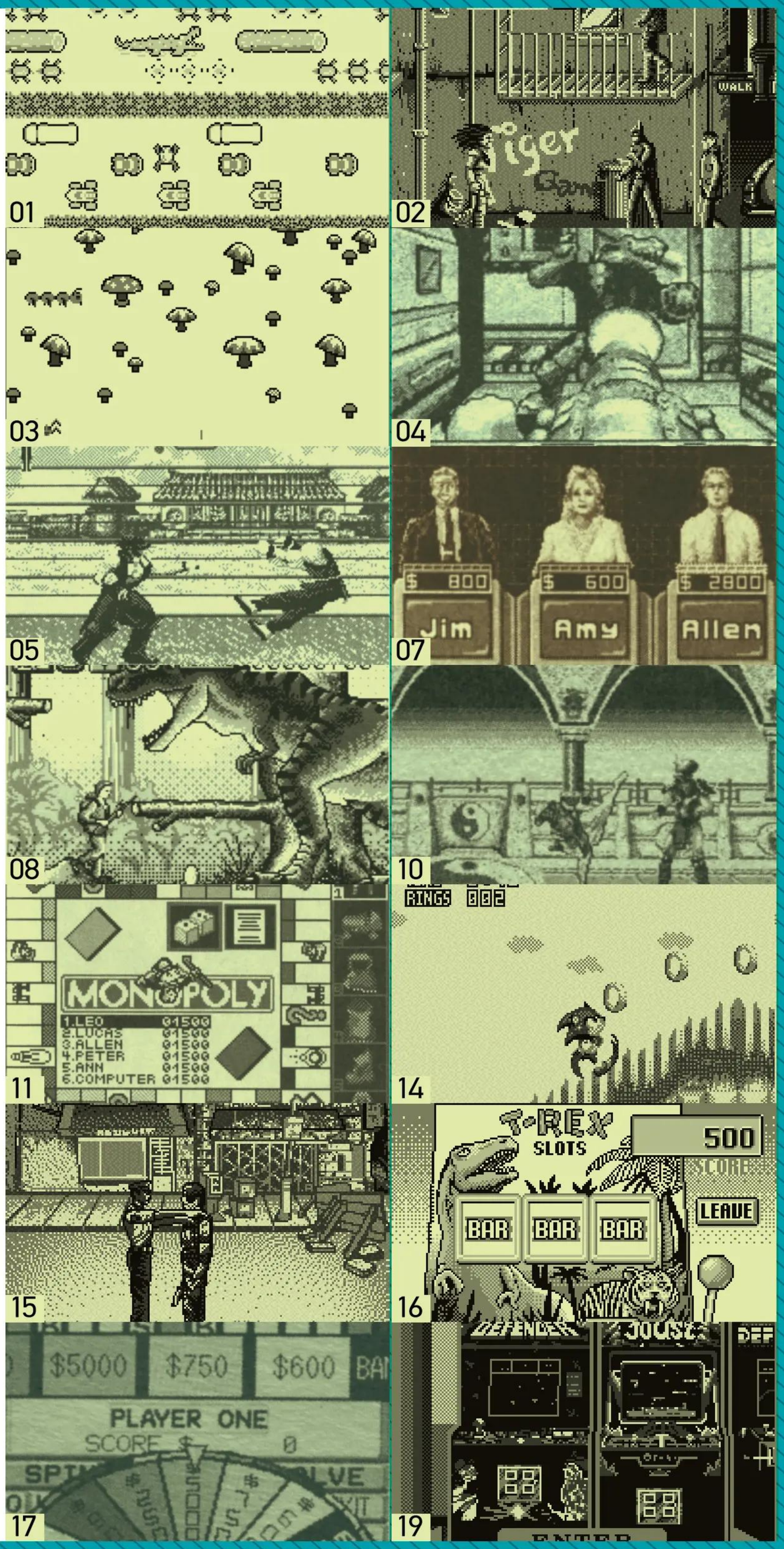
16. TIGER CASINO
Great presentation and good controls make this gambling compendium a solid release, but the subject matter is hardly the most inspiring content.

17. WHEEL OF FORTUNE
A good example of a 'does what it says on the tin' game. The quiz show translates well and is just as fun/boring as you'd expect.

18. WHEEL OF FORTUNE 2
The only sequel to a Game.com title! This one doesn't really make any improvements; it just adds more puzzles to extend the lifespan.

19. WILLIAMS ARCADE CLASSICS
Joust, *Defender*, *Robotron 2084*, *Sinistar* and *Defender II* all appear in this mixed bag. *Robotron* is the best, while *Sinistar* is unplayable.

20. LIGHTS OUT
This timeless puzzler translates perfectly to the Game.com touchscreen, but the difficulty soon hits like a brick wall. Too hard.



» The Game.com Pocket Pro was smaller and featured a better screen, but it was too little and too late to save the day.

Another problem was that Tiger failed to capitalise on many of the handheld's real selling points. With the exception of *Solitaire*, the in-built software was too basic or not useful enough when compared to proper PDA devices, while the machine's internet capabilities never came close to reaching their exciting potential. And from a game design perspective, it was disheartening to see Tiger waste the potential of the touchscreen by failing to make use of it in all but the most simple puzzle games, although some gamers, like Steven Cox, webmaster of a popular Game.com fan site in 1998, sympathise with Tiger on this particular issue. "Nintendo [in 2005 had to persuade] game developers to develop for the DS touchscreen. It's simply easier for developers to follow the tried-and-true control pad paradigm," he argues. "Tiger Electronics was at least doing its stuff in-house, but even then I think there was a large conceptual wall to hurdle to get the developers to think in terms of the touchscreen interface. Porting their puzzle games over was surely easy, but what does the touchscreen bring to games like the *Batman & Robin* movie property? It's a neat feature that ultimately looks better as a PR selling point than an actual gameplay addition."

Worst of all, many of the upcoming games failed to emerge from within Tiger's walls. Promising new games like *A Bug's Life*, *Small Soldiers*, *NBA Hangtime*, *Shadow Madness*, *Madden Football '98* and *Turok: Dinosaur Hunter* were all cancelled in addition to the previously mentioned *X-Files*, *Godzilla*, *Castlevania* and *Metal Gear Solid*, leaving the Game.com with more exciting games left on the scrap heap than on store shelves. And the final nail in the coffin for the few fans still left hanging on to their Game.coms was the cancellation of *Mutoids*, the only title that realistically stood a chance of saving the system.

Tiger Electronics quickly moved on. The company had recently been acquired by Hasbro and had a phenomenon to call its own in the form of the increasingly popular Furby toys. Development of new Game.com titles was eventually ceased, and although the company continued to stock surplus units of the system on its online store for some time, the handheld was officially discontinued in 2000.

Only a total of 20 games were ever released for the Game.com, and the handheld remains one of the most unarguable failures in gaming history with over two decades of hindsight. Boxed systems and sealed games are fairly easy to source on eBay at varying prices, and the system doesn't even enjoy the cult status afforded to other doomed handhelds like the Neo Geo Pocket or Bandai WonderSwan.

In terms of the after-market scene, Tiger Electronics' Game.com barely registers a faint blip on the radar, but there were individuals that had hopes to kickstart an online community for the handheld. Hacker and homebrew programmer Jason Oster was lucky enough to acquire an official Game.com development kit a few years before this article was first published in 2009.

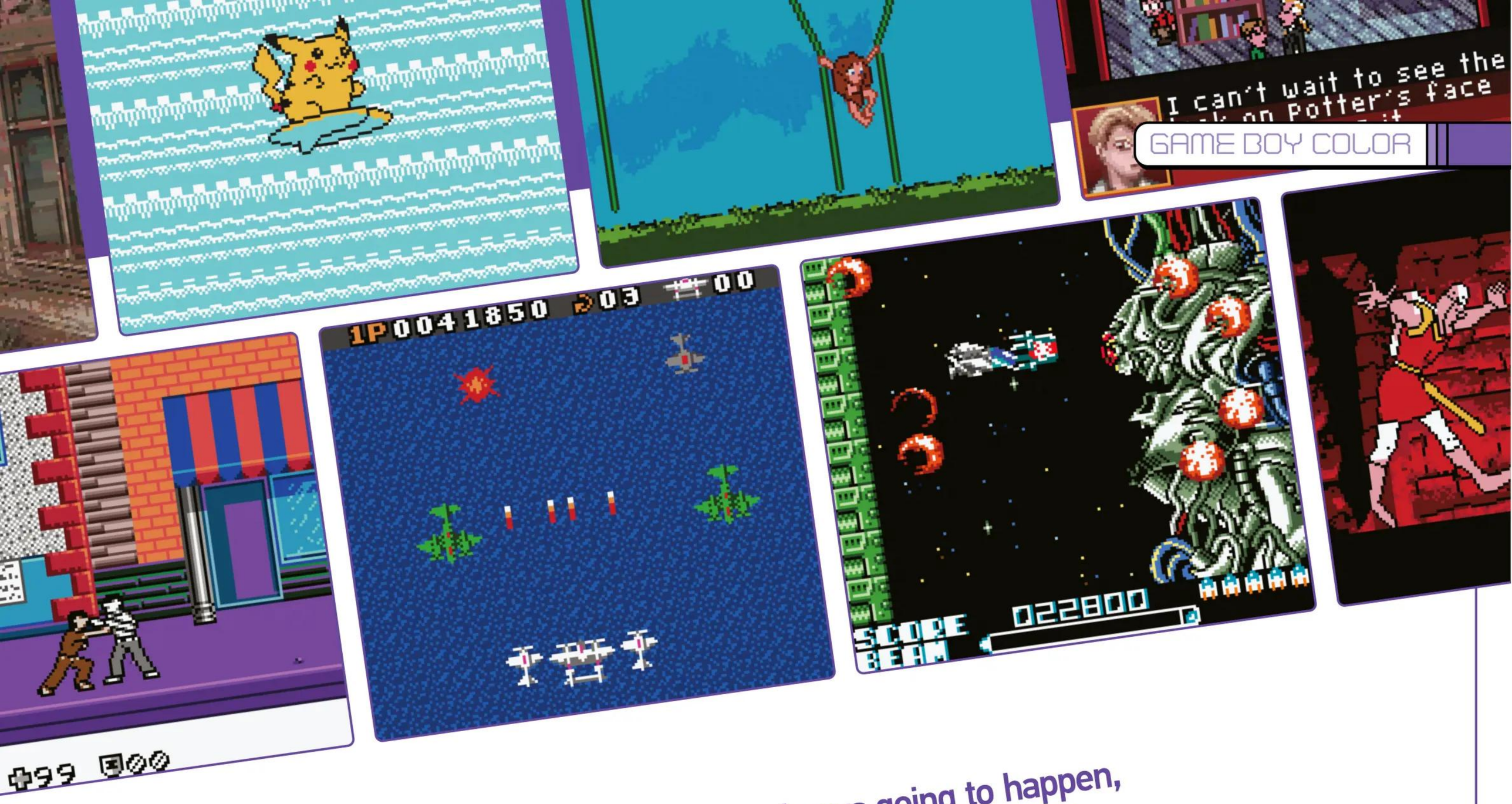
"The development kit hardware is basically just an EPROM emulator," he says. "It connects to a PC through the ISA slot. A Game.com cartridge ROM can then be uploaded to the emulator using a DOS program. And the modified Game.com can run it just like any other cartridge. One of the better finds in the development kit was a full-featured software emulator that can run and debug any of the Game.com game ROMs on a Windows PC. We were able to hack the emulator to discover so much previously unknown information about the MCU. Eventually, I released some of that info as part of an open-source assembler project for homebrew development.

"The emulator in the dev kit is great," Jason continues. "It's almost 100% perfect. And you can actually see what you are doing in games, with an extremely high contrast and no blur. One of our members was working on Game.com support in MESS [Multiple Emulator Super System], but I'm not sure how far along he got with it. The MCU is pretty well-documented now, but fine details still need to be sorted. I think to really do that well, some homebrew demos need to be made and run on the hardware. The assembler, code-named 'as85', was the first assembler I ever wrote and it's an essential piece of software for writing homebrew Game.com code. It just needs to be worked on a bit more until it's in a usable state, and then the real hacking and development can begin."

For regular gamers, however, the Game.com is a mere footnote in the history of videogames at worst, and a particularly relevant lesson in the difficulties of the handheld games market at best. For Steven Cox, whose Game.com now sits boxed up under his desk with his Lynx, Game Boy and C64, Tiger's handheld is a reminder of just how turbulent and open to change the game industry really is.

"If a little company like Tiger can make a go at it then the market is much more malleable than we often think," he argues. "Remember, industry analysts were laughing at Sony for daring to take on console giants Sega and Nintendo, and a single generation later the same analysts laughed at Microsoft for daring to take on Sony. The gaming market is a strange place and Game.com is part of its history". ✱

GAME BOY COLOR



A Game Boy with colour graphics was always going to happen, it was just a case of when. Yet few would have guessed that Nintendo would wait nine and a half years before releasing the Game Boy Color. So was it worth waiting for?

Words by Martyn Carroll

The Game Boy Color was part of the Game Boy line, an upgrade of the original monochrome machine that sold millions and won the handheld gaming market for Nintendo. The firm itself has always been clear that it was not a successor. Indeed, it groups worldwide sales of the original Game Boy, the smaller Game Boy Pocket, the backlit Game Boy Light and the Game Boy Color together (that's a total of 119 million units, big number fans).

But whereas the Pocket and the Light were upgrades in the most functional sense, the Game Boy Color was a clear enhancement over earlier models. Obviously, colour graphics were its key reason for existing. Compared to the monochrome Game Boy and its four shades of grey, the GBC was able to display 56 simultaneous colours from a palette of 32,000. Nintendo claimed that the device displayed "brilliant color (sic)", but that was a slight stretch as the screen wasn't backlit (in order to save all-important battery life). Instead, the screen utilised reflective technology, so just like the original Game Boy, it looked great if you were playing outside on a sunny day, but its lustre diminished in low-light conditions.

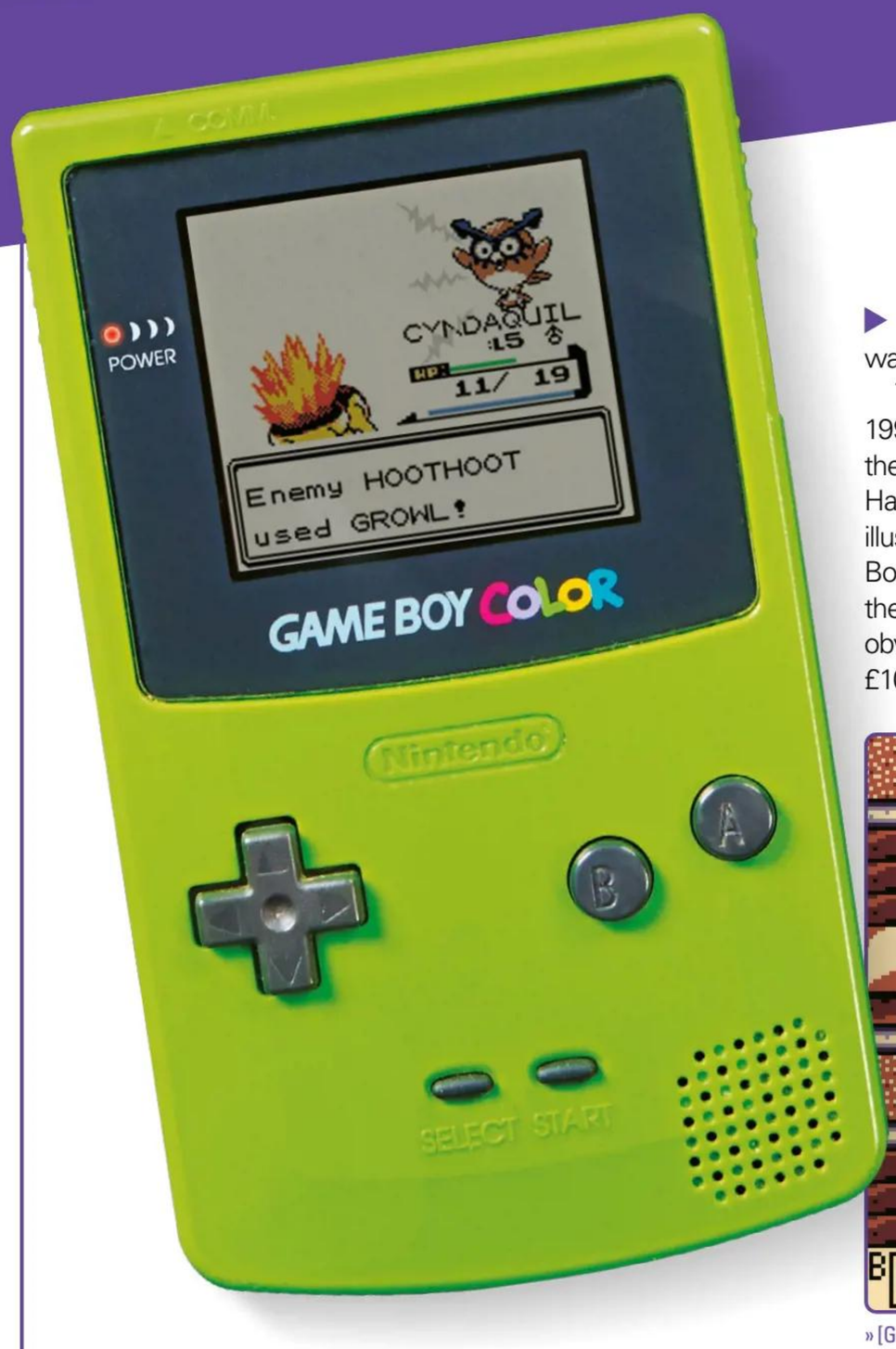
The colour display was the main selling point, but the device also benefitted from an overall hardware boost to better serve game developers. The processor remained the same – a custom 8-bit CPU that was similar to the Z80 – but its clock speed was doubled to 8MHz. Video RAM was also doubled, to 16KB, while main memory was quadrupled to 32KB (which still sounds minute but remember that game data was stored on ROM cartridges, which could now be up to 8MB in size). The DMA (Direct Memory Access) capabilities were enhanced too, speeding up data transfer to the new screen.

Outwardly, the Game Boy Color was very similar to the earlier Game Boy Pocket, although the device was a little larger and the screen was slightly smaller. Most familiar features were retained – the classic d-pad, the four buttons (A, B, Start, Select), the volume dial, the headphone jack, link cable port and so on. It took two AA batteries, compared to the Pocket's two AAA batteries, but battery life was comparable at around ten hours of play from a full charge. Considering the faster processor and colour screen, that was quite a coup from Nintendo.

The Game Boy Color was released worldwide in 1998, yet rumours about a colour handheld had been around almost as long as the Game Boy itself. "It does exist, I have seen it," claimed Jason Spiller in the launch issue of *GB Action* magazine – published in 1992! "During a brief wander around the Consumer Electronic Show, I popped my head around a

» Bob Baffy thoroughly enjoyed making games for Nintendo's colour handheld.

» Mike Mika is a big fan of the Game Boy Color and currently is president of Digital Eclipse.



"As a successor to the original the GBC ticked all the right boxes"

Bob Pape

corner of a mysterious-looking room and there it was. No doubt about it. The colour Game Boy is real."

The article predicted a release date of September 1993. So just five years out. We should go easy on the team as this was a classic gaming mag 'expose'. Having no actual assets to show, the article was illustrated with a mocked-up photo of an original Game Boy with a 'coloured-in' version of *Tetris* slapped on the screen. Other predictions were accurate, though obvious – as portable as the original and priced under £100 (it would eventually retail for £80 at launch in the UK). But there was a very interesting forecast at the end of the article: "It's rumoured that the colour machine *will* play your old mono games."

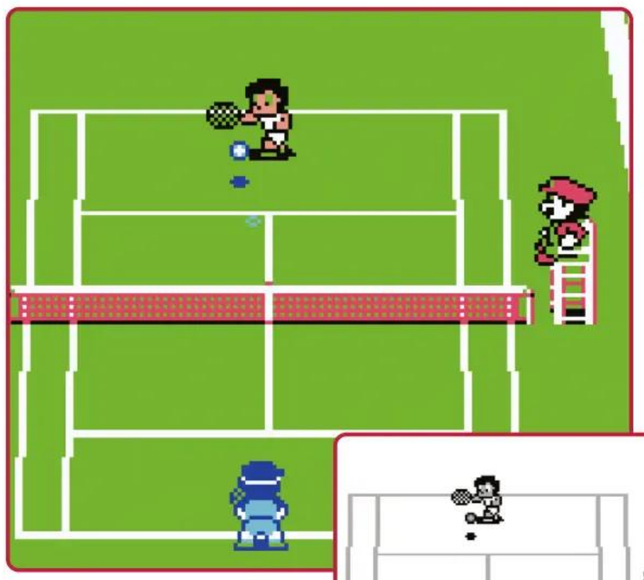
Now this was a bold prediction. These days Nintendo has frequently advocated for backwards compatibility, but back then its home consoles were not compatible with each other. Surely it would be painting itself into a *Qix*-style corner by retaining compatibility for the old Game Boy? Maybe not in 1993, but five years later? The truth is that Nintendo did scope out a much more powerful 32-bit handheld in the mid-Nineties, under the 'Project Atlantis' moniker, but in the end it opted for a successor that could play the vast catalogue of mono GB games. And that decision had ramifications for the GBC.

"Backwards compatibility more or less defined technically what the Game Boy Color would eventually have to become," says Bob Pape, who developed games for both the Game Boy and GBC, including the celebrated conversion *R-Type DX*. "Nintendo probably came up with all sorts of alternatives and I'm sure they looked at the Sega Game Gear and Atari Lynx for what *not* to do with a colour handheld. As a successor to the original, the GBC ticked all the right boxes with regard to size, battery life, reliability and most importantly backwards compatibility. Radically changing anything would have disrupted the upgrade path. It would have pretty much killed off the pre-existing Game Boy market and annoyed customers left with a game collection they could only play on yesterday's console."

» [Game Boy Color] The DX upgrade of *Legend Of Zelda: Link's Awakening* added a 'Color Dungeon' that showcased the system's new hues.

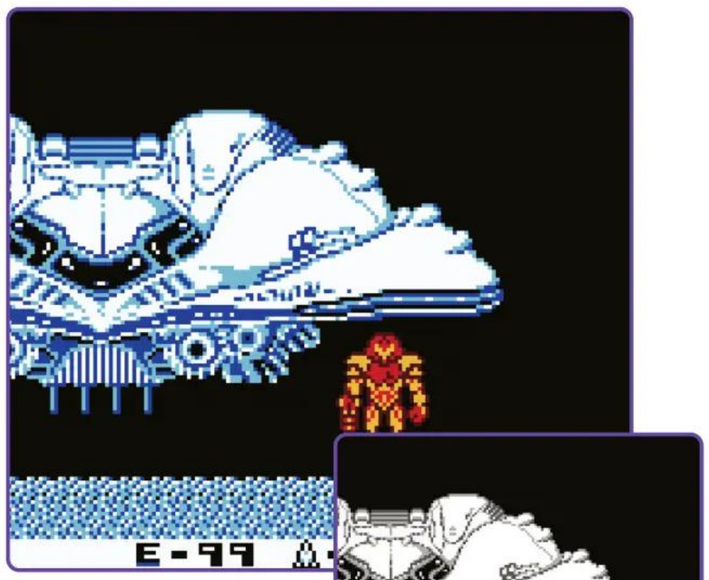
Let there be COLOR

Monochrome games that were brought to life on the GBC



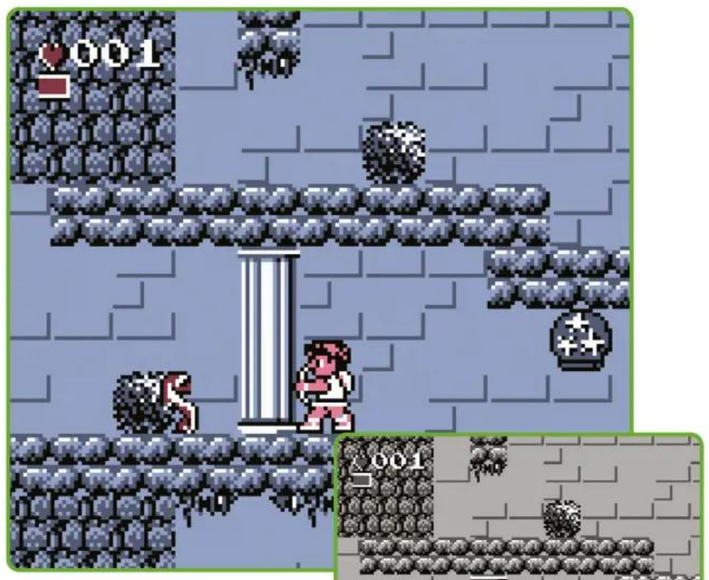
TENNIS

■ This early sports title is transformed on the Game Boy Color. The court is a lush green colour and umpire Mario is wearing his red cap, as he should be. Obviously, if you have a GBC then your go-to tennis game should be the excellent *Mario Tennis*, but the original has a certain charm.



METROID II

■ Samus's second adventure was supposed to receive a dedicated Game Boy Color update but it never materialised. That was possibly because the colourised version looked so good that a new release wasn't warranted. While playing, it's easy to forget that this is a mono Game Boy game.



KID ICARUS

■ You can't fail to be enchanted by this brilliant platformer – a sequel to the NES original – and it looks better than ever when played on the Game Boy Color. As with *Metroid II*, the introduction of colour almost transforms it into a brand-new game, with the sprites popping off the screen.

The Game Boy Color could play all of the existing grey-coloured Game Boy carts, and as an added bonus it would 'colourise' old games. This worked a lot like the Super Game Boy add-on for the SNES, where the shades of grey could be substituted for distinct colours. There were a number of preset palettes which the user could select when the game started up. Furthermore, the device included dedicated palettes for more than 90 key titles (mainly first-party releases and popular games from other publishers). So ancient titles like *Tetris* and *Super Mario Land* were given a new and enhanced lease of life on the GBC. It was clever tech, where the GBC would grab the game title from the cart's header during the boot procedure and then apply a dedicated palette if one was available. It was so clever that it gave birth to an amusing myth that all monochromatic GB games were actually developed with colour graphics, it was just that the poor GB couldn't display them!

In addition to backwards compatibility, Nintendo also introduced forwards compatibility to the Game Boy line. Many of the early Game Boy Color titles, such as *Tetris DX* and *Pocket Bomberman*, were designed to play on the older GB by effectively ignoring the colour information. It was also possible to store separate GB and GBC versions on a single cart, with the correct version selected on start-up (*R-Type DX* and *Conker's Pockets Tales* were two examples that did this). These compatible 'dual mode' carts were identified by their black cases, while later games that would only run on the GBC came in clear cases.

The comprehensive upgrade path chosen by Nintendo was welcomed by Mike Mika, director and programmer at prolific Game Boy developer Digital Eclipse. He says: "I was already a huge fan of the original Game Boy, so when the Game Boy Color was announced I was worried that I'd have to learn an entirely new architecture. It was amazing how Nintendo managed to create a device that played GB games as well as introducing some key bits of hardware that made the system feel entirely new. It doubled the processing and introduced hardware DMA transfers, which became critical to our success on the platform. We could pretty much reload entire graphic sets every frame to give us fullscreen animation and complex sprite displays. It was powerful enough for us to deliver a pretty decent version of *Dragon's Lair* and develop Disney-quality animation that paid homage to some of Virgin's Disney titles on home consoles."

Mike's Digital Eclipse colleague Bob Baffy was also a fan. "I was impressed with how Nintendo handled the technical challenges of adding colour to an already established platform without too much breakage or incompatibility. It wasn't perfect, but man was it fun to develop for the Game Boy Color." For Bob, the limitations were obvious, particularly as he specialised in sound and music. "More memory for audio and art, and a little speed boost would have made some things less painful," he says. "But given the state of technology at the time, I felt it was a pretty well-rounded piece of hardware. Being selfish, a bigger and more powerful speaker would have been nice."

Audio was one element that Nintendo overlooked, with the Game Boy Color retaining the four-channel stereo sound from the original device. "Honestly, the audio was the biggest drawback," says Mike. "We had enough power to deliver some pretty convincing digital samples, and mix that with pure sound generation, but it took a big chunk of the processing per frame and an even larger chunk of cartridge space. Writing a flexible graphics system and bank-switching architecture was a challenge, too. We had to learn how to do things the hard way, by reverse engineering it. Nintendo provided nearly nothing in the way of support."

» [Game Boy Color] *Wario Land II* was originally designed for the original GB, but the fantastic third game, seen here, was a dedicated GBC title.

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100% GAME BOY 100% GAME BOY 100% GAME BOY 100% GAME BOY
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» *GB Action* magazine went big with its colour Game Boy 'reveal', a mere six years before the handheld actually arrived.

SUPER MARIO LAND 2

■ All three *Mario Land* games were enhanced on the Game Boy Color. This is the best of bunch, as the pastel-coloured palette lends itself well to the game's breezy levels. Okay, so the coins are not golden, and Mario's wardrobe is a bit wrong, but we're happy to let that slide.

DONKEY KONG LAND

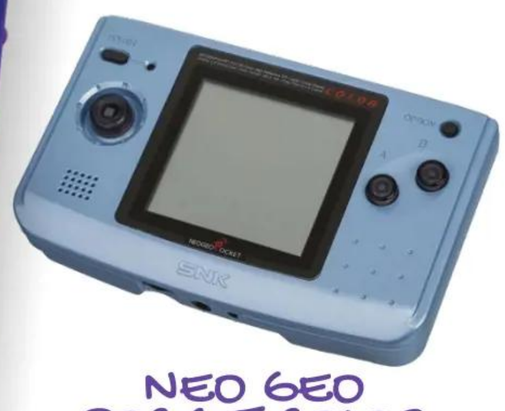
■ Everyone was wowed when this hit the Game Boy and it didn't look too far from the SNES original. However, the brilliantly animated sprites were often lost in the busy backgrounds. By simply colouring the sprites the problem was fixed and the game is transformed.

Color handheld wars

How the three competing handhelds stacked up

GAME BOY COLOR

Released: 1998
CPU: 8-bit Sharp LR35902
RAM: 48Kb total
Display: 6.6cm size, 160×144 resolution
Colours: 56 from 32,768
Battery Life: 10hrs from 2xAA batteries



NEO GEO POCKET COLOR

Released: 1999
CPU: 16-bit Toshiba TLCS-900
RAM: 16Kb total
Display: 6.8cm size, 160×152
Colours: 241 from 4,096
Battery Life: 40hrs from 2xAA batteries

WONDERSWAN COLOR

Released: 1998
CPU: 16-bit NEC V30
RAM: 64Kb total
Display: 7.4cm size, 224×144
Colours: 146 from 4,096
Battery Life: 20hrs from 1xAA battery

▶ What Nintendo did provide was a portable platform that beat the most optimistic sales expectations. The Game Boy Color conquered the handheld space, easily brushing aside the Neo Geo Pocket Color and the WonderSwan Color, and there was no threat yet from mobile phone gaming which was still stuck at *Snake*. Software sales were strong, too. Nintendo published games like *Pokémon* and *Zelda* dominated the charts, but licensed titles proved to be a cash cow for firms like Digital Eclipse. "Everything sold," says Mike. "There were just so many units out there and licensed games were selling huge numbers. We would literally get calls from publishers every week as this was a peak moment in movie-based games. Essentially GBC games were printing money. I was told *Tarzan* sold more copies than the N64 and PlayStation versions combined."

Tarzan was one of the first games to utilise the full power of the Game Boy Color and hence came

» [Game Boy Color] There were some surprisingly good 3D driving games released for the system, including *V-Rally* (pictured) and *Top Gear Pocket*.

Exclusives to treasure

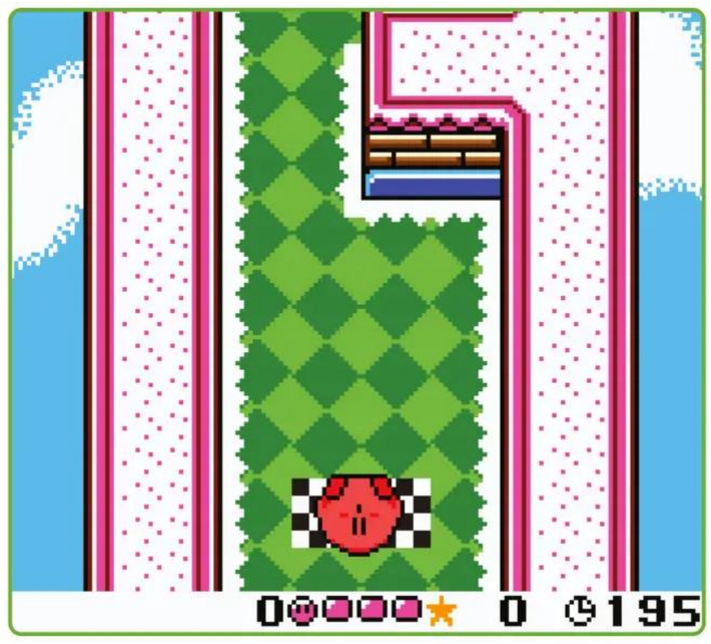
Six classic GBC games that you won't find anywhere else (Virtual Console included)

STRANDED KIDS 1999

■ It may look like a *Zelda* clone, but this is a unique, open-ended adventure where you have to survive on a desert island by foraging and crafting. It's utterly charming and captivating throughout. *Stranded Kids* was followed by a sequel, and succeeded by the *Lost In Blue* series on Nintendo's DS and Wii.

POKÉMON PINBALL 1999

■ All of the Game Boy Color *Pokémon* games were available on the 3DS Virtual Console bar this spin-off. This is possibly because the original cart includes rumble tech (that requires its own AAA battery). As portable pinball games go it's one of the best, rivalling the classic *Kirby's Pinball Land*.



KIRBY TILT 'N' TUMBLE 2000

■ Another title that included built-in tech, in this instance an accelerometer inside the cart. By tilting and jerking the Game Boy Color, you guide our rotund friend around various courses, collecting stars. It's a riot, basically. This was never released in Europe, making it an import favourite.

"It wasn't perfect, but man was it fun to develop for the GBC"

Bob Baffy

on a clear cart. The first prominent GBC-only release was *Super Mario Bros Deluxe* in early 1999 and this set something of a precedent, with dual mode releases soon becoming the exception rather than the norm. This move was embraced by developers (and Nintendo too, no doubt), even though it was possible to harness the GBC's full capabilities with a dual mode release. "In order to support both platforms you were developing for the lowest common denominator," says Mike. "You basically colourised a Game Boy game and didn't do much more than that to keep production costs down. Our first GBC-only game was *Klax*. We showed Midway's CEO what it would be like using the full capabilities of the GBC, and then showed him the old black and white version. He didn't hesitate."

Bob adds: "I think Nintendo eventually started nudging folks to go with the Game Boy Color-only carts when they saw what a huge success the GBC became. Put simply, GBC-only games just looked a lot better than the dual ones, and Nintendo sold enough GBCs to justify dropping support for the original Game Boy."

Nintendo would eventually drop support for the Game Boy Color in 2003, four-and-a-half years after it debuted, during which time close to 600 games were released for the system. However it was superseded two years earlier with the arrival of the Game Boy Advance in 2001. This was the true successor to the Game Boy that brought 32-bit gaming to eager mitts. Once again, Nintendo kept the previous generation alive by including support for Game Boy and GBC games. As such, the GBC is a largely redundant piece of kit these days. If you want to revisit a GBC game then you'd be advised to play it on a GBA (specifically a GBA SP thanks to its backlit screen). Or you could play it on a TV using the Game Boy Player for the GameCube, or, if you wish to retain that portable magic, Analogue's superb Pocket console.

The Game Boy Color may be looking a little obsolete but it's far from forgotten – certainly not by the developers at Digital Eclipse who enjoyed the challenge of making it sing. "The technical limitations of the Game Boy Color sometimes made for better games," says Bob. "I've since worked on console and PC titles that had a lot less limitations but were less fun to develop because we weren't pushed to find creative solutions."

For Mike, the Game Boy Color rekindled the bedroom coding ethic of the industry's early days. "In many respects it was like the old demo scene on the Commodore 64 and Amiga," he says. "For those making games on the Game Boy Color there was a subtext to our efforts. We were all trying to show off how far we could push it. If we introduced a full-motion video player, someone like Vicarious Visions would find a way to do it with hundreds of colours on screen, and then someone else would figure out how to do that with great sampled audio. We were all having a great time and we'd all hang out at events and how off our games as if we were at a demo scene meet-up."

He adds: "Most people who created Game Boy Color games were doing it to put off being part of much bigger teams where fighting for ideas was much harder. On the GBC, you could still make a great game with one or two people and the development process was fast and unhindered. When I got into the industry, I thought I'd missed out on the heady days of small-team games. The GBC gave me a taste of that."

For the rest of us, the Game Boy Color gave us our first taste of colour gaming on a Nintendo handheld, and a flavour of what was to come with the Game Boy Advance. History may remember it as a stopgap with a short shelf life, but it was a neat device regardless that played host to some genuine classics. Above all, it was a proud entry to the Game Boy Line that entertained gamers on the go for more than a decade. ✱

METAL GEAR SOLID 2000

■ Ignore the title. This is not an attempt to recreate the 3D majesty of the PlayStation game. Rather it's a return to the overhead 2D style of the MSX and NES titles, and its brand of stealthy gameplay works brilliantly on the Game Boy Color. Known in Japan as *Metal Gear: Ghost Babel*.

WARLOCKED 2000

■ Not a particularly well-known title, but one that fans of real-time strategy games should definitely seek out. You can happily waste hours playing this, making it perfect for long journeys. It's technically impressive, too, with very little slowdown despite the complexity of the game.

WENDY: EVERY WITCH WAY 2001

■ Licensed didn't always mean lousy. This whimsical platformer, featuring Wendy the witch from the *Casper* series, features a gravity gimmick that transforms an ordinary game into an exceptional one. Creator Matt Bozon would follow this with the first entry in the *Shantae* series.

THE STORY OF THE

NEO GEO POCKET

Having capable hardware, great games and an attractive price point makes success in the console market easier, but it's no guarantee – just ask SNK, which had all three and still couldn't dent the dominance of Nintendo's Game Boy line

If there's one word you'd typically associate with SNK's hardware, we'd hazard a guess that 'luxury' would be near the top of the list. The Neo Geo AES, released in 1990, offered arcade perfection for those who could afford it – and with cartridges selling for over £100, they were few in number. The introduction of the Neo Geo CD in 1994 managed to bring software prices down, but the enormous amount of RAM needed meant that the hardware was too expensive, with the Saturn and PlayStation both undercutting it within just a few months of launch. It wasn't a bad product, just the wrong one for the time.

As the Nineties wore on, SNK struggled in the marketplace. In arcades, the Neo Geo MVS was dated and the 3D games on the Hyper Neo Geo 64 proved too unspectacular to make much headway. Production of the Neo Geo home console systems was discontinued in 1997 due to dwindling interest, though software was still being released. There was no sense in trying to create a new one, either – the home consoles had leveraged shared technology with the arcade hardware, and nobody was going to get excited about Hyper Neo Geo 64 games at home.

However, there was an opportunity in the handheld console market. Although the *Pokémon* phenomenon had driven a late-life revival of Nintendo's Game Boy, it was still a dated system that hadn't faced serious competition since Sega discontinued the Game Gear. SNK had enough recognisable properties to consider supporting a console of its own. Plus, the handheld market provided an intelligent way to utilise the company's 2D game ▶

RYO
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TIME
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SNK

» [Neo Geo Pocket Color] Games like *Metal Slug: 2nd Mission* really emphasised the technical superiority of the hardware.

HEAD TO HEAD

How SNK's hardware shaped up to the competition

Neo Geo Pocket Color

CPU
16-bit Toshiba TLCS-900/H (6.144 MHz), 8-bit Z80 (3.072 MHz)

MEMORY
12KB main RAM, 4KB Z80 RAM, 8KB character RAM, 4KB scroll VRAM

DISPLAY
160x152 resolution, up to 146 colours on screen from a palette of 4,096

GRAPHICS
Two scrolling background planes (each 256x256), up to 64 sprites on screen (8x8)

SOUND
Three square wave channels, noise channel

MEDIA
ROM cartridge (up to 4MB)

POWER
Two AA batteries (main, up to 40 hours gameplay), one CR2032 battery (memory functions)

Game Boy Color

CPU
8-bit Toshiba TLCS-900/H (6.144 MHz), 8-bit Z80 (3.072 MHz)

MEMORY
32KB main RAM, 16KB video RAM

DISPLAY
160x144 resolution, up to 56 colours on screen from a palette of 32,768

GRAPHICS
One scrolling background plane (256x256), up to 40 sprites on screen (8x8 or 8x16), ten sprites per line

SOUND
Two square wave channels, PCM channel, noise channel

MEDIA
ROM cartridge (up to 8MB)

POWER
Two AA batteries (up to ten hours gameplay)

WonderSwan

CPU
16-bit NEC V30 MZ (3.072 MHz)

MEMORY
32KB RAM

DISPLAY
224x144 resolution, up to eight shades of grey on-screen

GRAPHICS
Two scrolling backgrounds (each 256x256), up to 128 sprites on screen (8x8), 32 sprites per line

SOUND
Four PCM channels

MEDIA
ROM cartridge (up to 16MB)

POWER
One AA battery (up to 40 hours gameplay)

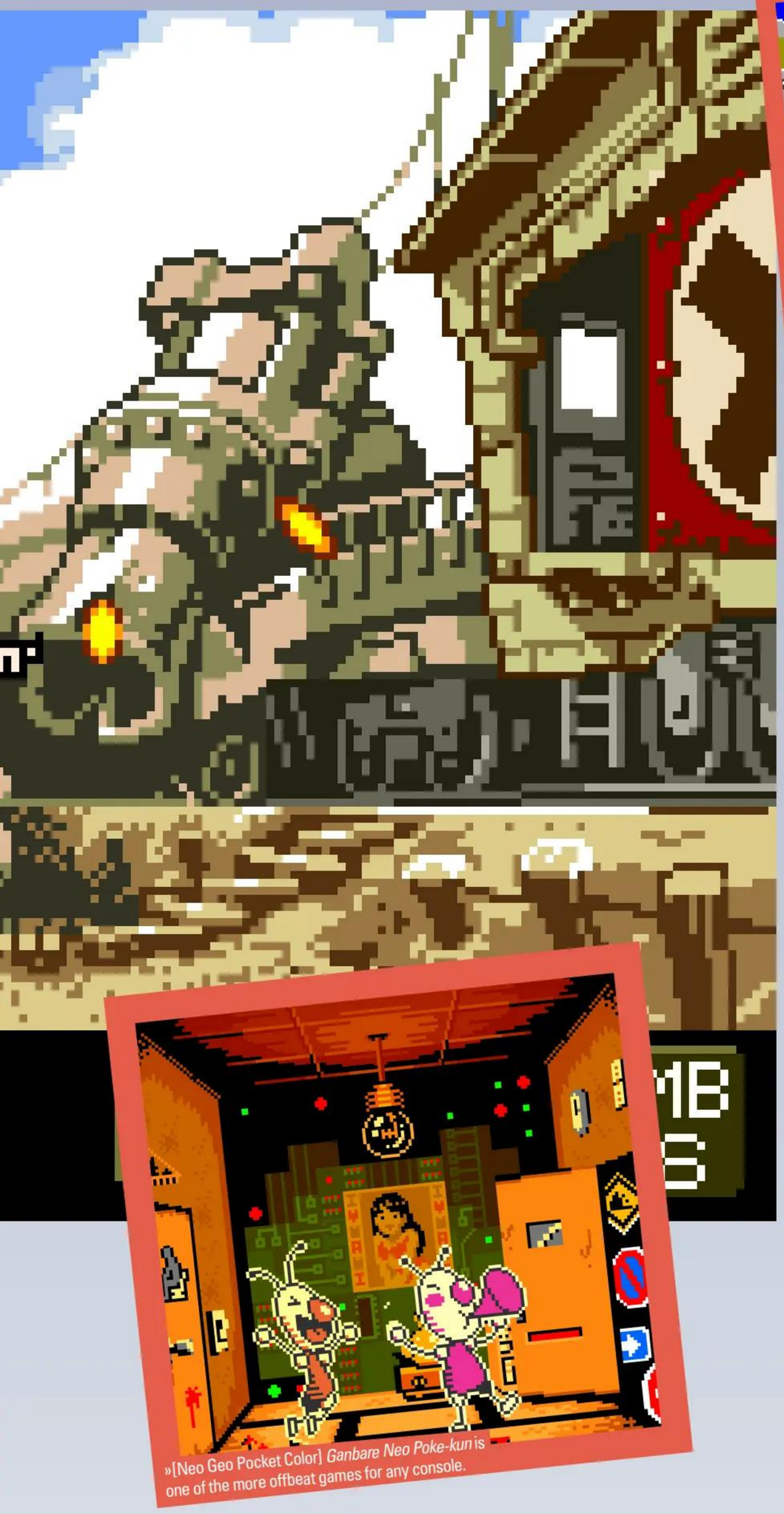
"The Neo Geo Pocket debuted on the market precisely one week after Nintendo reinvigorated its handheld business by introducing the Game Boy Color"

» [Neo Geo Pocket] Games on the system often feature exaggerated features and particularly expressive facial animations.

▶ development expertise, which was increasingly unfashionable on home consoles. For the first time, SNK would attempt to make a machine with a genuine shot at the mass market.

The Neo Geo Pocket was released in Japan on 28 October 1998, with six games, including *The King Of Fighters R-1*, *Baseball Stars* and *Neo Geo Cup 98*. The system had many features that compared well with the Game Boy – a crisp greyscale LCD, a brawny 16-bit CPU, comparable battery life and excellent controls that utilised a microswitched thumbstick that gave a distinctive clicking sound when used. *Master Of Shogi*, *Samurai Shodown!* and *Neo Cherry Master* joined the software library in 1998, and then, software support abruptly dropped. Barely two months after it launched, the original Neo Geo Pocket was effectively dead in the water.

Once again, SNK had released a product that just wasn't right for the time. Where the Neo Geo CD was a 2D system that arrived just before the whole world embraced 3D graphics, the Neo Geo Pocket debuted on the market precisely one week after Nintendo reinvigorated its handheld business by introducing the Game Boy Color. It didn't matter how good the games were – and they were pretty solid. SNK's machine looked like yesterday's news before it even hit



» [Neo Geo Pocket Color] *Sonic Pocket Adventure* mixed *Sonic 2*'s stages with *Sonic 3*'s music to great effect.

» [Neo Geo Pocket Color] *Fatal Fury: First Contact* was a simplified version of the arcade game *Real Bout Fatal Fury 2*

» [Neo Geo Pocket Color] ADK's *Crush Roller* was a greatly expanded remake of the Eighties arcade maze game.

» [Neo Geo Pocket Color] *Ganbare Neo Poke-kun* is one of the more offbeat games for any console.

the shelves; the situation smacked of poor planning, considering Nintendo had announced its new system in March 1998.

The Neo Geo Pocket Color was swiftly introduced to replace the original model, and it resembled its predecessor closely, differing primarily in its inclusion of a colour screen and hardware that could push almost three times as many on-screen colours as the Game Boy Color. Though the short life of the original Neo Geo Pocket was surely galling to those few who bought it, SNK did ensure that it wasn't entirely obsolete – the new system was backwards compatible for those who chose to upgrade, and all but a handful of the new games released in 1999 included support for the original system.

Officially arriving in the Japanese market on 19 March 1999, the Neo Geo Pocket Color launched at ¥8,800 with eight games – five of which were new colour versions of older games – and six colourful shell designs. SNK made a fairly bold attempt to position the hardware against Nintendo's juggernaut, with the slogan, "I'm not boy," used in early print advertising, but by this point, a third competitor had entered the battle. The toy giant Bandai had launched the WonderSwan a couple of weeks earlier, with a low price of ¥4,800 and major licensing deals compensating for its lack of colour graphics.

The most popular launch game for the Neo Geo Pocket Color was *The King Of Fighters R-2*, which sold 16,920 copies in its first week on sale – not an enormous number, but a decent start. Over the coming months, SNK moved to bolster the system's software library, primarily with versions of its arcade hits – *Fatal Fury: First Contact*, *Metal Slug: 1st Mission*, *Samurai Spirits! 2* and *Neo Turf Masters* arrived throughout the spring and summer. SNK covered the handheld staple puzzle genre by tapping up Taito for *Puzzle Bobble* and Sega for *Puyo Puyo*, and the company also recognised the need for original software, with dungeon-crawling RPG *Biomotor Unitron* being one of the early highlights.

The Neo Geo Pocket Color was introduced to the North American market gradually, with a soft launch via direct online sales preceding full retail availability in August 1999. The system launched at $69.99, with games retailing in cardboard boxes rather than the plastic clamshell cases – a cost-cutting measure soon adopted in Japan. SNK also chose to give the system a refresh in Japan around this time, announcing the revised New Neo Geo Pocket Color model in September 1999, for a 21 October launch. This slightly smaller version of the system had all the same features as previous models ▶

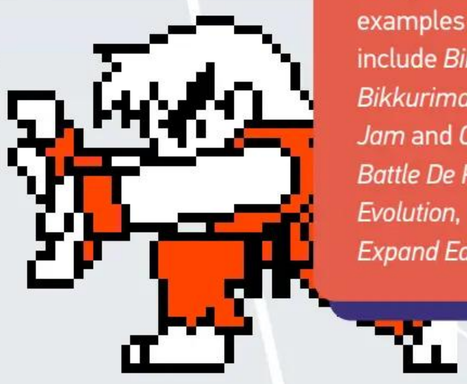
DREAM TEAM

How SNK's connection with Sega became very literal

SNK's efforts to disrupt the handheld gaming market happened to coincide with Sega's attempt to make a major comeback with the Dreamcast. The companies had a good working relationship thanks to SNK's time as a third-party publisher of Saturn games, and the hardware interests of the two companies had no overlap since Sega had exited the handheld market a few years prior. Those favourable conditions allowed for the creation of the Neo Geo Pocket Color to Dreamcast link cable, one of the more unusual peripherals for both systems.

Rather than allowing for a secondary game display – a function already fulfilled by the Dreamcast's VMU peripheral – this cable primarily facilitated data transfer. For example, it was possible to unlock special attributes for Making mode in *The King Of Fighters R-2* through *The King Of Fighters: Dream Match 99* on Dreamcast, or transfer points gathered in *SNK Vs Capcom: Match Of The Millennium* to unlock items in *Capcom Vs SNK*.

Given the limited audience for the cable and the lack of crossover between Dreamcast and Neo Geo Pocket developers, few games supported the cable. Besides the examples mentioned above, linkable games include *Bikkuriman 2000 Viva! Festival!* and *Bikkuriman 2000 Viva! Pocket Festival!*, *Cool Cool Jam* and *Cool Cool Toon*, *The King Of Fighters: Battle De Paradise* and *The King Of Fighters: Evolution*, and *SNK Vs Capcom Card Fighters 2: Expand Edition* and *Capcom Vs SNK 2*.



» [Neo Geo Pocket Color] *Pac-Man* is practically perfect on SNK's machine, providing some sweet nostalgic pleasure.

» [Neo Geo Pocket Color] *Neo Turf Masters* proved just as compelling on the go as in the arcades.

▶ and would retail for a reduced price of ¥6,800. The system reached the European market in October 1999 with 14 games, as well as a UK hardware price of £59.99 – undercutting Nintendo by £10.

One thing that SNK did have going for it was a robust critical response. *IGN*'s overview of the system noted its technical advantages over the Game Boy Color, and described the thumbstick as "more comfortable than the d-pad used on the Game Boy systems". Assessing 12 of the UK launch games, *Computer & Video Games* awarded only two titles fewer than four stars and gave the full five to *King Of Fighters R-2*, *Neo Turf Masters* and *Pac-Man*. *Arcade* reviewed six of the system's UK launch games, awarding five stars to *Metal Slug 1st Mission*, *Neo Turf Masters* and *Puzzle Bobble*, and four to *King Of Fighters R-2* and *Neo Geo Cup 98 Plus*. The magazine would later call it "probably the strongest console launch line-up ever".

As the holiday season approached, a concentrated effort was made to provide major star power for the portable platform. SNK's working relationship with Sega allowed the latter's mascot to appear in *Sonic The Hedgehog Pocket Adventure*: an excellent platform game which earned 93% from *GamesMaster* and 5/5 scores from both *CVG* and *Arcade*. Another major coup was SNK's deal with Capcom, which resulted in two fantastic games. *SNK Vs Capcom: Card Fighters Clash* gave players chance to battle it out with decks of trading cards featuring iconic characters, and earned 90% from *GamesMaster*, 5/5 from *Arcade* and an average of 8/10 from *Electronic Gaming Monthly*'s four reviewers. *EGM*'s Che Chou "never even dreamt [tag team fighting] was possible on a handheld system", but *SNK Vs Capcom: Match Of The Millennium* delivered it and allowed characters from *Street Fighter*, *Darkstalkers*, *The King Of Fighters* and more to collide for the first time.

Though SNK had a good piece of hardware, recognisable names and high-quality software, the Game Boy Color had brand recognition; Nintendo had wealth, and *Pokémon* was taking over the world. *Pokémon Red & Blue* hit Europe in October 1999; *Yellow* arrived in North America the same month. In Japan, the eagerly awaited sequel versions *Gold & Silver* launched in November, selling over 3.6 million copies before the year was out. The WonderSwan was also outperforming the Neo Geo Pocket Color in Japan, aided by games like the *Final Fantasy* spin-off *Chocobo's Mysterious Dungeon*. That situation continued into 2000 – it wasn't unusual to see WonderSwan games based on properties like *Digimon*, *Hunter X Hunter* and *Soul Hunter* land in the all-format charts, but Neo Geo Pocket Color games barely made an appearance.

SNK was acquired by the pachinko manufacturer Aruze in January 2000, and at first, it appeared as though business would continue as usual. The release schedule continued apace in the first half of the year, with games like *Metal Slug: 2nd Mission*, *SNK Gals Fighters* and *Cotton* making an impression internationally and *Ganbare Neo Poke-kun* intriguing Japanese audiences. SNK made an appearance at E3 in May, showing off its future games, including *Biomotor Unitron 2*, *Cool Boarders Pocket*, *US Wrestling* and *Cool Cool Jam*, a sister title to the Dreamcast game *Cool Cool Toon*. An MP3 player add-on was also announced, and the company proudly announced that it had acquired a 2% market share in the United States – a small foothold, for sure, but a remarkable feat all the same when you consider the dominance of Nintendo.

PLAY IT TODAY

Original hardware isn't the only way to enjoy SNK's handheld

For many years after its bankruptcy and revival, SNK didn't seem to pay much attention to the Neo Geo Pocket line, preferring to focus its retro efforts primarily on the Neo Geo MVS and AES games for which it was most famous. That all changed in 2019 when *Samurai Shodown! 2* was made available as a preorder bonus for the Switch version of that year's *Samurai Shodown* reboot, heralding the start of the *Neo Geo Pocket Color Selection* project. SNK has since made a variety of games available, and has signed licensing deals so that obvious choices can be joined by equally iconic but less likely inclusions.

The emulation in all of the *Neo Geo Pocket Color Selection* games has been handled by Code Mystics and is of good quality, with features including an LCD screen filter, rewind functions, digital manuals and versus play support. One thing to note is that while games that weren't originally released in English have translated English manuals, the screen text remains in Japanese – this is true for *Mega Man: Battle & Fighters* and other games.

Though some games such as *SNK Vs Capcom: Match Of The Millennium* are available individually, we would advise anyone with a broad interest in the system to pick up the *Neo Geo Pocket Color Selection* compilations, particularly *Vol 1*. Each offers ten games and they include some extra features, including the choice of playing on the black-and-white system and 3D models of the game boxes. More importantly, certain games are only available on the compilations – *The Last Blade* and *Neo Turf Masters* can only be had in *Vol 1*, for example.

In June 2000, everything came crashing down as SNK ceased doing business in international markets immediately. Reporting on the move, *Arcade* wrote, "Although the Neo Geo Pocket enjoyed successful sales in the UK, indifference to the games machine in Europe and America is thought to have forced Aruze, the parent company of SNK, to take drastic action." All existing stock was recalled from stores, causing late releases to become very rare as only a few players snapped them up, and customers were left with no customer service support. The decision was so abrupt that US advertising ran for games including *Dynamite Slugger*, *Faselei!* and *The Last Blade: Beyond The Destiny*, which never made it to retailers.

The situation was hardly better in Japan. Games like *Rockman Battle & Fighters* and *Cool Cool Jam* arrived in the summer, but support for the system drastically declined. Aside from *Big Bang Pro Wrestling*, the visual novel *Infinity Cure* and the RPG *Nigeronpa*, all released in November 2000, owners of the system were left with just a few sporadic releases of pachislot and mahjong games. The system would receive a last hurrah in September 2001, with the launch of *SNK Vs Capcom Card Fighters 2: Expand Edition*, before SNK collapsed into bankruptcy in October. Former chairman Eikichi Kawasaki and his new company Playmore would acquire SNK's intellectual properties and begin rebuilding, but the handheld was not to be revived.

"There was enough hardware and software left for a viable business opportunity"

What Playmore didn't purchase was interesting in its own right. When games were recalled in 2000, cases and manuals were destroyed but the cartridges were kept to repurpose them for new Japanese releases. There was enough hardware and software left for a viable business opportunity, so old Neo Geo Pocket Color stock began resurfacing at retail shortly after the collapse of SNK. Systems were packaged in blister packs with a bundle of six games, all with only their plastic covers, and sold cheaply as 'Pocket Color Arcade'. Further bundles of four were available, and some of the games that appeared were ESRB-rated versions of games like *Faselei!* and *The Last Blade*, further showing just how sudden SNK's withdrawal from the US market had been.

Though the Neo Geo Pocket systems were not commercially successful in their day, they are highly prized by collectors today. The system's library of games is small enough to be feasible to collect in full but rare enough that doing so is a genuine challenge, and SNK continues to attract a dedicated following of fans. Beyond that, the Neo Geo Pocket offers the simple allure of well-designed hardware and excellent games, with particular strengths, including the fighting games you'd expect from SNK, as well as an excellent array of puzzle games. The games often have unique features that make them worth checking out, too, whether you're searching for puzzle pieces in *Sonic Pocket Adventure* or creating a fighter with unique attributes in *The King Of Fighters R-2*'s Making mode.

SNK made some mistakes with the Neo Geo Pocket, most notably in its decision not to skip straight to the colour model, but it did plenty of things right, too. So many that we would argue that among the many failed consoles out there, it is one of the least deserving of its cruel fate. It's too late to change that, but if you haven't had the pleasure of trying one yet, then it's time to correct that. You'll soon learn just why the system's owners still cherish it today. ✱

» [Neo Geo Pocket Color] SNK made a huge effort with its crossover games, delivering classics worthy of the occasion.

» [Neo Geo Pocket Color] Handheld consoles need puzzle games, and few are as good as *Puzzle Bobble Mini*.

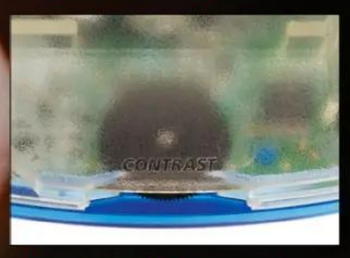
» [Neo Geo Pocket Color] Aruze's pachislot games began to appear late in 1999, before SNK was acquired.

Swan Song

— A WonderSwan Retrospective

Proof that not even Gundam can topple Nintendo, Bandai's WonderSwan still had an incredible selection of games worthy of a place in anyone's collection. Kerry Brunskill takes us through the system's life

» The Wonder Swan's buttons also double up as the handheld's d-pad. They work surprisingly well.



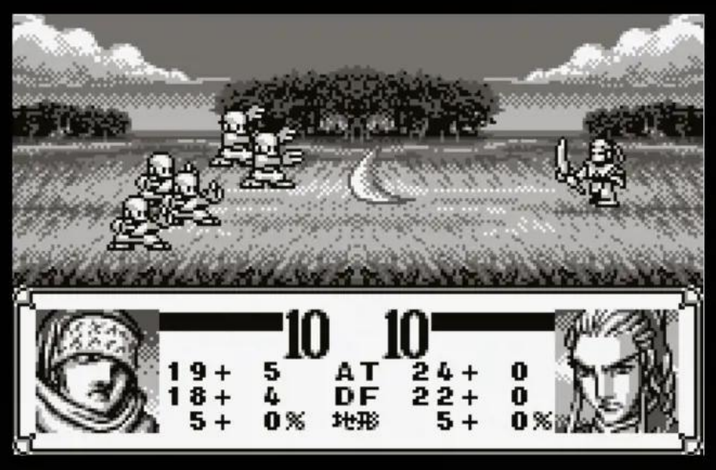
» There's no backlit screen on the WonderSwan range, so the contrast dial is greatly needed.

Created by the legendary Game Boy designer Gunpei Yokoi and backed by Bandai's deep pockets as well as its enormous marketing muscle, the WonderSwan had gamers playing Super Nintendo ports and connecting to the internet, while those of us outside Japan were still marvelling over competent NES ports such as *Super Mario Bros DX* on the Game Boy Color. A success in every way bar the one that mattered to shareholders, the system nevertheless maintained a high gaming standard from launch day right up to the final release and has left gamers with a small but exciting box of treasures to explore to this day.

It's an odd name, but as with all the decisions behind Bandai's sleek handheld, there's a reason for that strange moniker. The idea is that a swan is an elegant bird on the surface but under the water, there's a set of strong legs powering it along. The WonderSwan line was created with this philosophy in mind – beautiful outward design coupled with powerful components inside.

At first glance, the shell design is vaguely reminiscent of Atari's Lynx – a relatively wide handheld designed with the ability to be played vertically and a spare set of buttons at the top of one side. Those extra buttons might look redundant, but unlike Atari's ill-fated system, the extra set of four inputs on the WonderSwan is completely separate rather than repeats, meaning developers could make good use of them whichever way up the handheld was being held, the 'Y' set often being used for menus, shortcuts and other handy but not immediately essential tasks.

Internally, the machine was more than up to the task of realising Gunpei Yokoi's vision, too:



» [WonderSwan] Although *Langrisser Millennium* is not considered part of the main canon, this spin-off strategy RPG is still a lot of fun.

boasting a custom 16-bit ASWAN processor and a 2.49-inch, 224x144 screen, which was far in advance of the Game Boy's ageing 8-bit CPU and 160x144 display. So it would seem strange, then, that the original WonderSwan launched with a monochrome screen on 4 March 1999, five months after the Japanese release of the Game Boy Color.

The reasoning was simple: Gunpei Yokoi had already seen his earlier Game Boy design crush the Game Gear and Atari Lynx – solid proof that consumers were more concerned about battery life and strong games than owning devices with colour screens. And with the WonderSwan needing only a single AA battery to achieve roughly 30 hours of playtime as well as costing ¥2000 (about £10) less than the Game Boy Color, both Bandai and Yokoi must have thought they were onto a sure-fire success with the WonderSwan.

History has, of course, proven otherwise, but then again, most systems would look bad when measured against one of the bestselling handhelds of all time. The WonderSwan had a fantastic and well-balanced selection of games at launch – headline puzzler *Gunpey* was seen

The sales

How WonderSwan compared in sales to other relevant handhelds

The WonderSwan is broadly dismissed as a failure; just a strange Japan-only handheld with some *Gundam* games on it – but it did much better than most gamers think. Accurate figures are, of course, always difficult to come by, but sources generally agree that approximately 3.5 million WonderSwans were sold, with the WonderSwan Color making up at least 1.1 million of that total. This pales in comparison to the original Game Boy (86.66 million worldwide), the Game Boy Color (31.03 million worldwide) and it doesn't even match up to Sega's Game Gear (11 million worldwide) but it does beat reported figures for the Neo Geo Pocket series (1.35 million worldwide) as well as better-known home hardware such as the 3DO (2 million worldwide) and the TurboGrafx (2.5 million in the United States).

The fact is that much like the Dreamcast, the WonderSwan wasn't so much of a failure – it just wasn't the success that Bandai needed it to be.

» It's amazing to think that this impressive little handheld is actually powered by a single AA battery. The WonderSwan Color lasts for 20 hours!

» [WonderSwan Color] A true classic and the best handheld port until the PSP compilation release.

as the system's answer to *Tetris*, SquareSoft's popular dungeon adventure *Chocobo's Mysterious Dungeon*, arcade train simulator *Densha De GO!* and lastly Tomy's *Shin Nihon Pro Wrestling* meant most Japanese gamers would be able to find something they liked, and these were swiftly followed up by even more games by some of the biggest developers and most popular series in Japan at the time, and by only the end of April, the WonderSwan library already had 18 titles including *Beatmania*, *Puyo Puyo Tsuu*, *Super Robot Taisen* and even an entry from Koei's long-running *Romance Of The Three Kingdoms* strategy series.

Bandai itself was more than keen to throw its full licensing muscle behind the system, giving WonderSwan developers access to some of the biggest and most recognisable anime series of all time. *Digimon*, *Gundam*, *One Piece*, *Dragon Ball*… during the handheld's life it had it all, and Bandai was sensible enough to ensure that these games were good-quality titles in their own right even if they aren't all considered classics of their era.

RPG fans did very well out of the WonderSwan's library, too, with excellent exclusives like action-RPG *Star Hearts*, multi-game love-in and *Project X Zone* precursor *Namco Super Wars,* and soon-to-be-GBA-classic *Riviera* rubbing shoulders with better-known games such as old-school dungeon-crawler *Wizardry: Proving Grounds Of The Mad Overlord* and SquareSoft's esoteric *Makai Toushi SaGa* remake.

Witnessing the success of the Game Boy Color and with SNK's Neo Geo Pocket also offering a colour alternative and competitor to the WonderSwan, Bandai did the only sensible thing it could and released an updated version of its WonderSwan with a colour screen on 9 December 2000, just 21 months after the original launched. This didn't just see Bandai play catch-up with its competitors' handhelds but completely outstrip them, while still getting an all-important 20 hours of play from a single AA battery. The new colour screen boasted the ability to display 241 colours simultaneously, with an astonishing 16 colours per sprite.

For comparison, the Game Boy Color could only manage four colours per sprite – and one of those was 'off'. The Neo Geo Pocket Color suffered similar sprite limitations as Nintendo's hardware and was only capable of displaying a relatively meagre 146 colours simultaneously. This boost in technology allowed the WonderSwan Color to produce almost SNES-quality graphics, far in advance of anything else available on a portable at the time, while still remaining backwards-compatible with all previous monochrome WonderSwan games.

» [WonderSwan Color] *Rhyme Rider Kerorican* – as quirky and unique as you'd expect from the creators of *PaRappa The Rapper.*

Bandai ensured that the WonderSwan Color had an incredible launch, just like its now-obsolete monochromatic previous design. Popular puzzler *Gunpey* came back with a colourised remake, NanaOn-Sha brought rhythm-action to the handheld with *Rhyme Rider Kerorican,* and with *Digimon Adventure 02,* Bandai made sure that the new WonderSwan still had some heavy-hitting IP support behind it.

But the real jewel in the crown was *Final Fantasy*, looking better than it ever had and at the time a WonderSwan exclusive. SquareSoft was one of the most notable supporters of the WonderSwan throughout the system's life; its unwillingness to work on Nintendo hardware proved to be a real asset to Bandai with its system being the first place to get high-quality remakes of some of its greatest games, as

» The WonderSwan has a number of games that can be played vertically – such as *Gunpey.*

WonderStuff

The handheld that had a surprising amount of cool additional extras

For a handheld released in just one country, the WonderSwan has an exceptional array of special-edition hardware, unique add-ons and limited-edition games. Bandai, never one to miss a marketing trick, was happy to release the handheld in every colour under the sun and also produce special editions based on various *Gundam* games, *Final Fantasy* and *Chocobo's Mysterious Dungeon,* as well as numerous *Digimon* bundles. Games often came with stickers, collectable cards or, in *With You*'s case, a small figure – something still rarely seen today.

Accessories were plentiful, too – the WonderBorg was an insect-like robot controlled from the WonderSwan via an IR-equipped cart, the WonderGate allowed certain games to access the internet via the user's mobile phone, and the WonderWitch was for the most hardcore of fans – a full development kit that enabled users to create their own games for the system and dump them onto the included flash cart.

well as experimental titles like *Wild Card* and that still remain exclusive to this day.

Sadly, the success of this relaunch was short-lived: the WonderSwan Color only had a few short months at the top of the technology tree before Nintendo released the Game Boy Advance in March 2001 – but Bandai wasn't going to let its machine go down without a fight…

During this tough time, the WonderSwan Color still managed to produce a lot of strong releases – *Romancing SaGa*, *Mr Driller*, *Xi [Sai] Little* (better known in the west as *Devil Dice*), *Guilty Gear Petit* to name just a few – but ultimately it wasn't enough to woo gamers away from Nintendo's GBA juggernaut, and so on 12 July 2002, Bandai gave the system one more push and launched what would turn out to be the final hardware revision – the SwanCrystal.

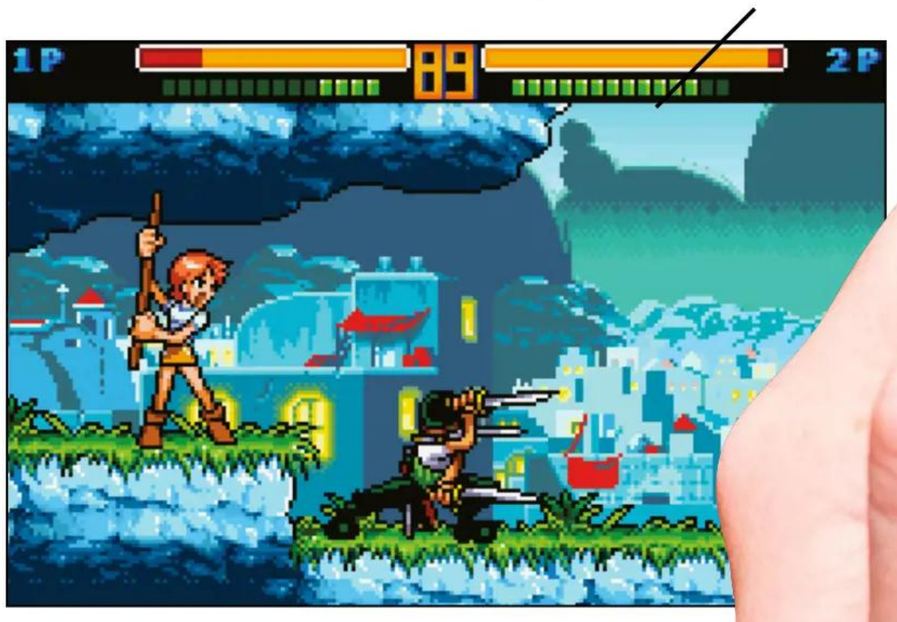
The 'Crystal' in the final version's name referred to the new screen, which was not only far sharper and clearer than the WonderSwan Color's but also a significant improvement on any other competitor's non-backlit screen too. Unfortunately, this wasn't enough to prevent further sales decline, but to its credit, Bandai and other developers like Capcom and SquareSoft stuck with the system, giving fans a great selection of ports – from standout SNES mech SRPG *Front Mission* to Sega's arcade classic *Golden Axe*, as well as more exclusive games covering a range of tastes and genres from PlayStation SRPG spinoff *Arc The Lad: Kijin Fukkatsu* to anime brawler *One Piece Grand Battle: Swan Colosseum* – at a time when other companies would have simply cut their losses and run.

By 2004, the WonderSwan was effectively finished, but the handheld refused to lie down and die. The WonderWitch, an expensive home-user WonderSwan development environment released four years earlier, had the honour of creating the last two WonderSwan games – *Judgement Silversword* and *Dicing Knight Period*. Both of these were winners of the WonderWitch programming contest and the prize, as you may have guessed, was to be commercially released for the platform. Both games fetch eye-watering amounts today, their quality makes them must-haves for curious gamers and their scarcity places them as prized games for discerning collectors.

Far more than just an importer's curiosity, the WonderSwan's five-year battle against one of gaming's Goliaths has gifted gamers with a rich library of 198 games across a broad variety of genres, many of which are still exclusive even today. A prime example of the difference between poor sales and poor quality, Bandai's sleek swan deserves a second flight. ✱

» *Wild Card* artist Akihiko Yoshida shows of his beautiful artwork both in and out of the game.

» [WonderSwan Color] Huge, expressive sprites and fast action make *One Piece Grand Battle* ace.



Five essential games

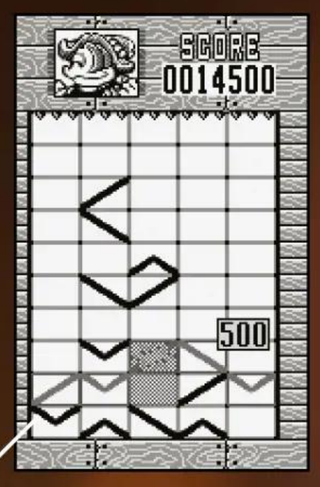
Got a WonderSwan? Then you'll need these

FINAL FANTASY

■ One of the most important RPGs of all time also ended up being the best-selling WonderSwan game ever. This remake – the first significant overhaul *Final Fantasy* ever had – was a major coup for the system and formed the basis of all future ports of the game. To add further fuel to SquareSoft's anti-Nintendo fire, Bandai also released a limited edition pearl-white WonderSwan bundle at the same time.

JUDGEMENT SILVERSWORD

■ Clearly inspired by Treasure's classic *Radiant Silvergun*, this shoot-'em-up takes advantage of the WonderSwan's extra screen length by having the player hold the handheld vertically for that authentic arcade experience. Two complementary weapons give clever players lots of tactics to use, and the rapid-fire stage progression keeps the action constant.



GUNPEY

■ Created by the legendary Gunpei Yokoi and intended to be the WonderSwan's answer to *Tetris*, this puzzler does a great job of showing off the unique abilities of the system thanks to its vertical play area and clear speech. The game never had the impact Bandai hoped for, but its strong underlying gameplay was enough to produce a few WonderSwan releases as well as more modern remakes for the PSP and Nintendo DS.

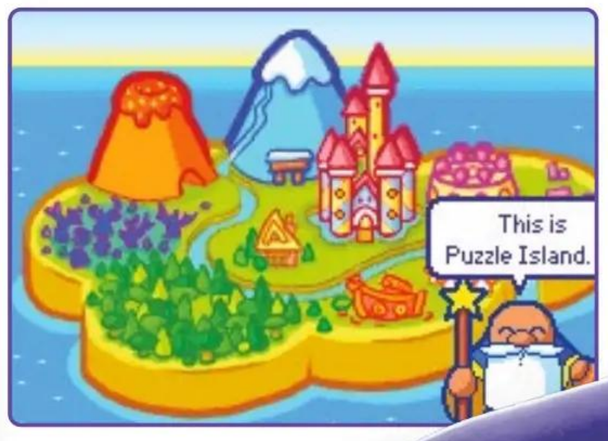
CLOCK TOWER

■ It's easy to ask what the fuss is all about when we live in an era where nigh-perfect console emulation is abundant, but *Clock Tower* is more than just a straight port. Containing extras from the PlayStation release and retaining the random rooms and multiple endings of its big-brother counterparts, *Clock Tower* is just as terrifying in the palm of your hands as it is on your TV.

GUILTY GEAR PETIT 2

■ The Neo Geo Pocket Color is often considered the king of portable fighting, but Sammy proved that the WonderSwan could take on even the mighty SNK at its own game. Fast, fluid, and with a wealth of single-player content to boot, *Guilty Gear Petit 2* captures the charm and pace of the original games while being different enough to work within the limitations of the hardware.

Special thanks to Kim Wild for the use of her WonderSwan Color

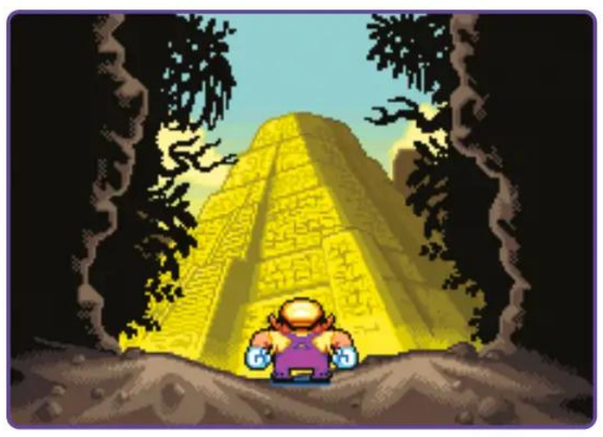


GAME BOY ADVA

With Nintendo's Game Boy Advance now over two decades old, Damien McFerran takes a look back at the innovative 32-bit handheld which delivered arcade and console-standard gaming on the go

The problem with runaway commercial success is that it's often tricky to repeat the magic a second time, but Nintendo is a company which has a track record of bottling lighting on multiple occasions. The Game Boy – and its sibling, the Game Boy Color – managed to shift a staggering 118 million units worldwide, effectively ensuring Nintendo's dominance of the portable gaming arena for over a decade. Carrying that success into a new generation of hardware was never going to be easy, especially as Nintendo was feeling pressure at the close of the millennium from mobile gaming rivals such as SNK, Bandai and even mobile phone stalwart Nokia. The Nintendo faithful needn't have worried, though – the console which the company pushed to market to deal with these threats was capable of effortlessly securing another half-decade of near-unchallenged triumph, even if it did take a couple of timely hardware revisions to become the truly definitive article.

Rumours regarding a successor to the monochrome Game Boy appeared in the press as early as 1996. Dubbed 'Project Atlantis', this mythical 32-bit system was RISC-based and boasted a colour screen, and it was later assumed that this is what eventually ▶



ADVANCE

▶ became the Game Boy Advance. However, a rumoured 1997 release date (a year before the Game Boy Color arrived) and the promise of N64-level visuals would suggest that this was not the console that would find its way to market in 2001. When Nintendo did eventually release a 'proper' successor to its Game Boy, it was rather more conservative than the rampant speculation would suggest. "There were rumours, even back then, that Nintendo was working on a mobile phone and handheld console hybrid," elaborates former *C&VG* editor Paul Davies. "I think we knew that the new Game Boy would be at Space World that year, so we made sure to book tickets. I just wanted something that was as good as SNES but portable, if I'm honest."

That's pretty much what we got. The GBA may have utilised a 32-bit CPU, but it remained a 2D machine at heart and employed many of the same technical tricks which had been so effective on the SNES. "The hardware specs were great – relatively speaking – so it was a really nice system to develop games for," recalls former Probe, Crawfish and Hotgen staffer David Leitch, who worked on both the Game Boy Advance and its forerunner the Game Boy Color. "The biggest change was that it was also powerful enough to write most – if not all – of the game in C, whereas on the Game Boy Color and earlier handheld systems, you were pretty much obliged to use assembly language. [Nintendo] enhanced the aspects that seriously limited what you could do on the Game Boy Color. For example, there were more sprites, more playfields, more background characters. It had hardware scaling and rotation, transparency effects and probably some more stuff that I've forgotten. It was kind of like having a SNES or Mega Drive in handheld form."

» [GBA] Some Game Boy Advance titles are almost unplayable on the original model, as the lack of screen lighting made dark visuals hard to see.

The Game Boy Advance made its Japanese debut in March 2001, sporting a landscape screen orientation which set it apart from Nintendo's previous handhelds, but wasn't without precedent – the company's Game & Watch handhelds often used this form factor. French designer Gwénaël Nicolas and his Tokyo-based design studio Curiosity Inc were employed to come up with the design, which combined elegant grey lines with an ergonomic body. Compared to the boxy Game Boy and more compact Game Boy Pocket and Game Boy Color, the Game Boy Advance was quite a departure from an aesthetic standpoint, but it retained the toy-like charm that had made the range so iconic. Beating inside the console was a 32-bit ARM7TDMI CPU heart, clocked at 16.8 MHz, while the 2.9-inch TFT screen showcased the system's impressive visuals. Launch titles like *F-Zero: Maximum Velocity* and *Castlevania: Circle Of The Moon* were certainly a step up from what players had become accustomed to on Nintendo's previous handhelds, but the company was keen to maintain a link between the generations so the GBA boasted backwards compatibility with Game Boy and Game Boy Color games. This proved to be instrumental when it came to selling the new machine to concerned parents, as it avoided the problem of an expansive library of games becoming surplus to requirements overnight. By keeping the name and maintaining support for older games, Nintendo was sending the message that this console was an inclusive upgrade.

For all of the refinements that the Game Boy Advance brought to the table, it had its shortcomings. That otherwise-striking TFT screen lacked a light, which made it hard to play the console unless you were directly underneath a source of illumination. "You had to sit under the best light source possible to even see what was going on," says Paul. "I played loads of *Castlevania* and *Metroid* on it and took it everywhere with me, but

» [GBA] *Metroid Fusion* was a stellar addition to the *Metroid* series, it's also notable as it was the furthest point in the timeline until 2021's *Metroid Dread*.

when visiting my parents' house, the only room I could really play was the kitchen, sat on a dining chair under the fluorescent light!" Some early Game Boy Advance games – the aforementioned *Castlevania: Circle Of The Moon* being a notable example – were rendered almost unplayable in dimly-lit environments due to the dark nature of the visuals. To combat this issue a series of bulky bolt-on peripherals were produced by third-party manufacturers which aped the equally laughable add-ons that typified the Game Boy era in the early Nineties. Another negative was the lack of a rechargeable power source; like its ageing forerunners, this new system was reliant on AA batteries, which did at least last for an impressive ten to 15 hours before replacements were needed. Even so, there was a feeling within the industry that it was high time that rechargeable batteries were incorporated into handheld consoles; the rise of the mobile phone proved conclusively that the technology existed to create such power cells and place them in small pieces of technology.

Despite its shortcomings, the GBA continued the commercial success of its predecessors and although quality original software was rather slow to appear, it began to build up a formidable selection of games. Early remasters, such as *Super Mario Advance*, *Final Fight One* and *Super Ghouls 'N Ghosts,* certainly scratched a nostalgic itch and were impressive

HARDWARE VARIANTS

The many faces of the Game Boy Advance

GAME BOY ADVANCE

■ Launched in 2001 and offering a landscape rather than portrait orientation, the Game Boy Advance was a significant step-up from the Game Boy Color, Nintendo's previous handheld console. However, the lack of an illuminated display and the reliance on batteries held it back somewhat.

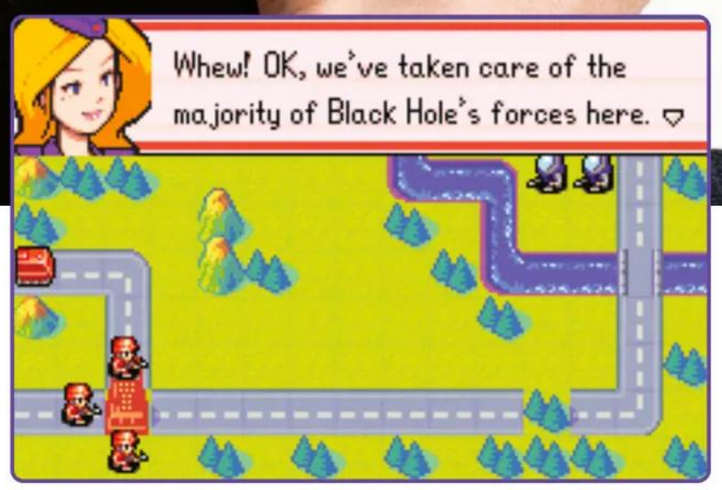
GAME BOY ADVANCE SP (AGS-001)

■ Two years after the launch of the original GBA model, Nintendo released the SP, offering a rechargeable battery, front-lit LCD screen and compact clamshell design which made it even more portable. The only real omission was the removal of the 3.5mm headphone jack – an accessory was released to cover this.

GAME BOY ADVANCE SP (AGS-101)

■ 2005 saw a largely under-the-radar revision of the GBA SP in the form of the AGS-101. The LCD screen was backlit, offering better brightness than the original AGS-001 model. It was also possible to adjust the backlight intensity with the brightness button – on the AGS-001, this button simply switched the frontlight off.

"It was like having a SNES or Mega Drive in handheld form"
David Leitch



» [GBA] Like *Fire Emblem*, *Advance Wars* took its western bow on Nintendo's 32-bit portable console.

for on-the-go gaming, but it was original releases such as *Advance Wars*, *Mario Kart: Super Circuit*, *Golden Sun*, *Metroid Fusion* and *WarioWare Inc* which truly illustrated what the hardware was capable of. This, combined with a more enthusiastic marketing spend, ensured that the system began to gather momentum all over the globe, and when it became apparent that challengers like the Tapwave Zodiac and Nokia N-Gage posed no immediate threat to Nintendo's market share, the console settled down into a period of complete control, attracting robust third-party support due to the fact that it was essentially the only handheld in town. "I was a really late starter in terms of when I got my first game out on the system," recalls David, who had early access to a Game Boy Advance development kit. "The project I had the prototype dev kit for didn't crystallise, so I carried on with the Game Boy Color work and some home console stuff before getting involved with *Medal Of Honor: Infiltrator* in 2003." The story behind this likeable Electronic Arts-published title typifies the changeable nature of third-party development – something which, arguably, hasn't changed right up to the present day. "That project was one of the most enjoyable things I've worked on, and not just on the GBA," says David. "Great team, great game, great results; but the company I was doing it for – Hotgen – went bust close to the scheduled end. We finished it off working out of a function room in a Croydon hotel."

Putting aside the shaky nature of third-party development, it was clear that despite ruling the entire handheld sector, Nintendo wasn't content to take its foot off the gas. In 2003, the Game Boy Advance SP was launched and to many, it proved to be the machine the original should have been from day one. While some grumbled about the overhaul appearing so quickly, faithful fans had no qualms about upgrading. "Nintendo is always about the hardware," says Paul. "After a million different versions of Game Boy, it wasn't even an issue, at least not for the ▶

GAME BOY MICRO

■ Released alongside the Nintendo DS, the Game Boy Micro is a miniaturised edition of the Game Boy Advance hardware which lacks backwards compatibility with Game Boy and Game Boy Color titles. It's the smallest Game Boy ever made, and reinstates the 3.5mm headphone socket removed on the SP model.

GAME BOY PLAYER

■ Essentially a GBA which fits under the GameCube, the Game Boy Player allows you to play GBA, Game Boy and Game Boy Color software on the big screen. A boot disc is required to use the peripheral, and not all GBA titles are compatible with the device, mind.

UNIQUE EXPERIENCES

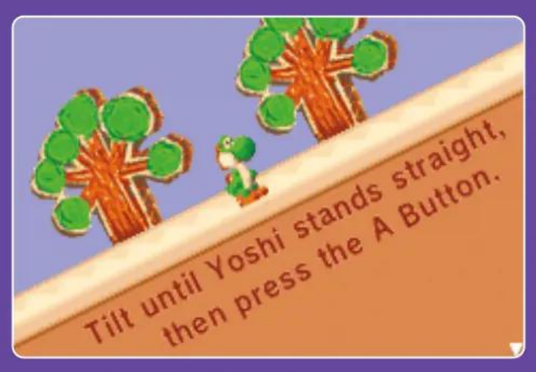
The console had a diverse – and sometimes odd – library of games

WARIOWARE: TWISTED!

■ Motion control isn't a new thing these days as many games showcase it, but this 2004 release – which featured a gyro sensor in the cartridge – was a revelation. Minigames based around tilting and turning the console make this a classic. It also had a rumble feature.

BOKTAI: THE SUN IS IN YOUR HAND

■ Produced by Hideo Kojima and employing a light sensor in the cart which was used to charge your vampire-slaying in-game weapon, *Boktai* has to stand as one of the most unique titles in the Game Boy Advance library. An excellent sequel arrived in 2004.



YOSHI'S UNIVERSAL GRAVITATION

■ Known as *Yoshi Topsy-Turvy* in North America, this 2D platformer made use of a tilt sensor in the cartridge, similar to *WarioWare Twisted*, to allow the player to manipulate the in-game environment, causing enemies and items to move and shift as the console is turned.

DRILL DOZER

■ One of only two Game Boy Advance titles to use a built-in rumble feature (*WarioWare: Twisted* was the other), *Drill Dozer* was developed by *Pokémon* studio Game Freak. A 2D action platformer with gameplay based around using a massive drill, the title was a late classic for the console.

KORO KORO PUZZLE HAPPY PANECHU!

■ This 2002 Japan-only puzzle title was the first game to use the tilt sensor, and is built around grouping coloured blocks to remove them from the play area. Produced by Masayuki Uemura – who designed the Famicom – it's a shame this unique title never made it to the west.

SPECS SHOWDOWN

The GBA was toted as a portable SNES, let's see if it was...

GAME BOY ADVANCE

- **CPU:** 16.8 MHz 32-bit ARM7TDMI, 8-bit Z80 coprocessor for Game Boy backward compatibility
- **MEMORY:** 32 kilobyte + 96 kilobyte VRAM (internal), 256 kilobyte DRAM (external)
- **MAXIMUM RESOLUTION:** 240×160 pixels
- **COLOURS:** 512 simultaneous colours (character mode), 32,768 simultaneous colours (bitmap mode)
- **SOUND:** Dual 8-bit DAC for stereo sound

SNES

- **CPU:** Ricoh 5A22 @ 3.58 MHz
- **MEMORY:** 128KB System RAM, 64KB video RAM
- **MAXIMUM RESOLUTION:** 512×448 pixels
- **COLOURS:** 256 on-screen from a palette of 32,768
- **SOUND:** Nintendo S-SMP, eight-channel ADPCM audio

PLAYSTATION

- **CPU:** 32-Bit RISC CPU MIPS R3051 at 33.8688 MHz, 32-bit Sony GPU
- **MEMORY:** 2 MB main DRAM
- **MAXIMUM RESOLUTION:** 640×480 (interlaced)
- **COLOURS:** 57,344 (256×224) to 153,600 (640×240) from a palette of 16,777,216
- **SOUND:** 16-Bit Sony SPU, 24-channel sound

hardcore fans. I guess we all saw it as Nintendo kindly attempting to improve the experience." Taking cues from the Game & Watch dual-screen range, the SP's clamshell design not only made it more portable, but also protected the screen when in transit. The display now had illumination – albeit of the rather dim front-lit variety (a superior backlit SP model would appear later) – and that all-important rechargeable battery meant having to buy a constant stock of AAs was to become a thing of the past. It's easy to overlook this feature today when practically every portable device sold has its own internal power source, which can be topped up at any available wall socket, but back in 2003, it was something of a minor revelation. The Game Boy line had truly come of age, not only allowing users to game in the dark but also freeing them from the archaic shackles of battery-buying. However, Nintendo giveth and Nintendo taketh away, and in streamlining the hardware the Japanese giant had to make some sacrifices. The 3.5mm headphone socket – an essential feature for those long and crowded car journeys – was removed entirely, and could only be obtained via the purchase of a special adaptor that connected to the console's charging socket. This meant that it wasn't possible to charge the console and listen via headphones at the same time – a minor inconvenience, but an inconvenience all the same.

» [GBA] A new *Pokémon* generation arrived on the GBA, as well as enhanced remakes of *Pokémon Red & Green*.

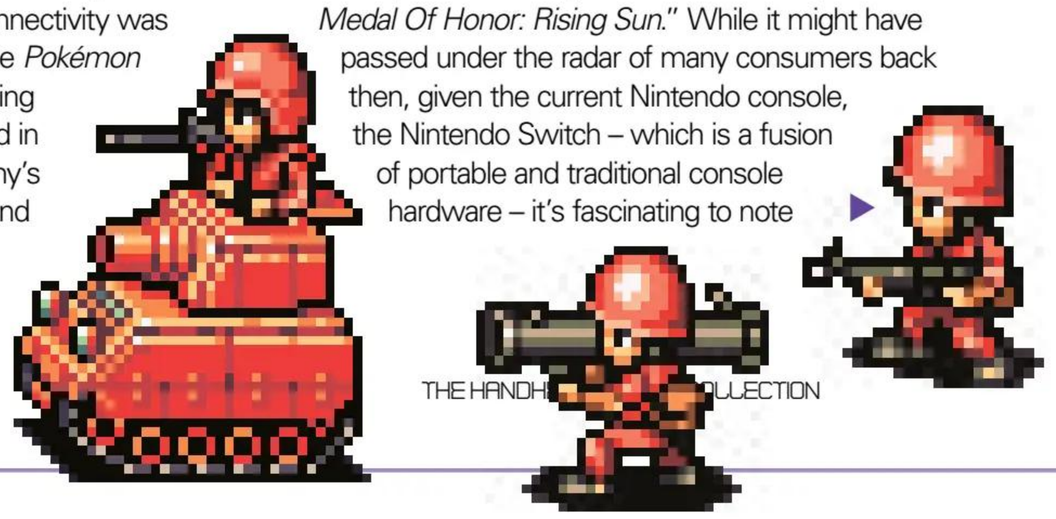
» [GBA] RPGs flourished on the GBA – *Final Fantasy Tactics Advance* being one of several Square Enix classics.

The release of the SP coincided with a fresh batch of solid-gold classics, such as *The Legend Of Zelda: A Link To The Past*, *Mario & Luigi Superstar Saga*, *Advance Wars 2: Black Hole Rising*, *Final Fantasy Tactics Advance*, *Metroid: Zero Mission*, *Super Mario Advance 4: Super Mario Bros. 3*, *Golden Sun 2: The Lost Age*, *Pokémon Ruby & Sapphire*, *Shining Force: Resurrection Of The Dark Dragon* and many more besides. The machine was entering what was arguably its zenith, with a steady stream of software arriving on a regular basis.

While the Game Boy Advance perhaps wasn't as groundbreaking as the touchscreen Nintendo DS which would succeed it in 2005, it introduced its fair share of innovations, largely via bolt-on devices which were aimed at expanding the connectivity of the device. Out of the box, the GBA maintained the link cable functionality of the original Game Boy system, where consoles could be connected for multiplayer gaming using physical wires. The big difference was that the GBA supported multiple consoles using a special hub, which meant that local multiplayer titles like *The Legend Of Zelda: Four Swords* (included with *Link To The Past*) were possible, making the experience even more social. However, the need for additional hardware limited the impact of this feature. "I don't think I've ever met a real, game-playing consumer that used the Game Link cable for more than five minutes," laughs David. "Unfortunately, publishers loved that feature because Nintendo did, and it was a real pain in the arse to develop for."

While Nintendo released several variants of the link cable throughout the lifespan of the Game Boy Advance hardware, the real step forward for connectivity was the wireless adapter released alongside *Pokémon Fire Red & Leaf Green* in 2004. Ushering in the wireless revolution which started in earnest with the Nintendo DS and Sony's PlayStation Portable, it supported around 30 games but sadly wasn't backwards-compatible with old-fashioned link cable software, which would have made it even more impressive. Despite its limited scope, the adapter was yet another example of Nintendo's uncanny ability to predict industry trends; these days, we take wireless local multiplayer as a given.

It wasn't just connectivity with other Game Boy Advance consoles that Nintendo was concerned with during this time; the company's desire to innovate was seemingly boundless and it made excellent use of its handheld when it came to expanding gameplay possibilities on its domestic system, the GameCube. In recent times the rise of tablets and smartphones – as well as the introduction of the Wii U – has brought 'second screen' gaming to prominence, but Nintendo flirted with the idea over a decade ago. Granted, while a lot of link-up functionality unlocked little more than bonus content, some titles – such as *The Legend Of Zelda: Four Swords Adventures*, *Pac-Man VS* and *Final Fantasy Crystal Chronicles* – made use of the GBA in inventive ways, turning the system into a controller for the GameCube or using the console's screen to manage inventory. "The only thing I worked on that used the GameCube hook-up was *Medal Of Honor: Infiltrator*, but it wasn't a multiplayer feature," says David. "What it did was turn your Game Boy Advance into a map viewer for *Medal Of Honor: Rising Sun*." While it might have passed under the radar of many consumers back then, given the current Nintendo console, the Nintendo Switch – which is a fusion of portable and traditional console hardware – it's fascinating to note



THE BEST PORTS

The home console or arcade games that shone on the GBA

SUPER GHOULS 'N GHOSTS

■ While it doesn't quite match the SNES original in terms of visual and aural spectacle, this pint-sized port is still incredibly compelling and benefits from a new 'arranged' mode, additional levels which reference previous games in the series and the ability to save your progress.

FINAL FIGHT ONE

■ Capcom's classic brawler was denied a complete port on the SNES so it was nice to see Capcom rectify this oversight by releasing one on the GBA. *Final Fight One* had scaled-down visuals but everything else was in good order, including a two-player link-up mode.

STREET FIGHTER ALPHA 3 UPPER

■ Arguably the most ambitious port in the history of the Game Boy Advance, Crawfish's work on *Street Fighter Alpha 3* is remarkable. The studio was able to include all of the characters and moves from the arcade game, as well as add in three extra fighters.

THE LEGEND OF ZELDA: A LINK TO THE PAST

■ The fact that very little has changed in this port of the 1991 SNES classic is reason enough to hail it as a must-have on GBA – owning one of the best games of all time in portable form was massive news back in 2002. A multiplayer-focused offering – dubbed *Four Swords* – was also included on the cart.

METROID: ZERO MISSION

■ Okay, so this isn't a straight port in the strictest sense – it's a remake of the original *Metroid* – but *Zero Mission* is easily one of the best games on the GBA, so it deserves a mention. The original *Metroid* is remastered and enhanced to exploit the advancements seen in *Metroid Fusion*, and the end result is a true gem.

THE MISSING LINK

Notable GameCube games that were made better by using a GBA

ANIMAL CROSSING

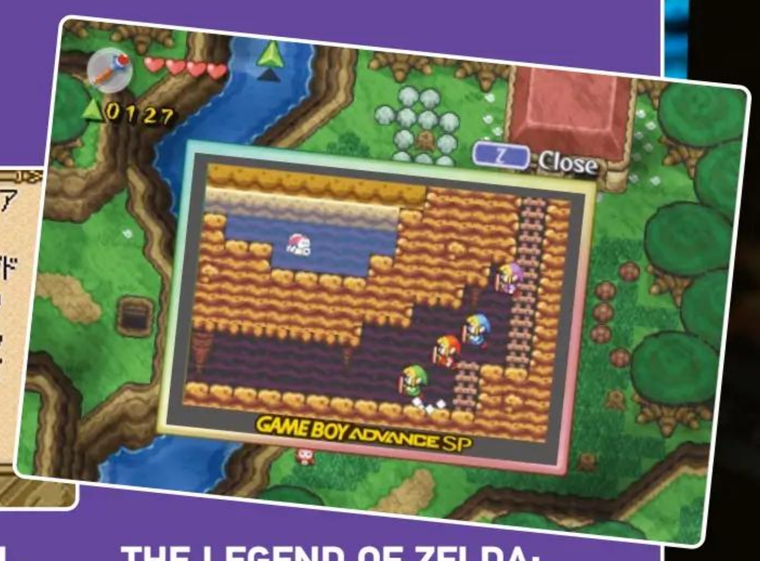
■ The Game Boy Advance's screen can be used to design patterns for your furniture in the game, as well as grant access to a special secret island. There's also a virtual pet minigame to play, and, if you are tired of Tom Nook's nonsense, you can use the Game Boy Advance to play unlockable NES games.

PAC-MAN VS

■ One of the most unique uses of the Game Boy Advance to GameCube link cable, *Pac-Man Vs* has three players assuming the roles of *Pac-Man*'s antagonistic ghosts and looking at the TV screen while the Pac-Man player uses the handheld and is able to see the entire map. A great party game, even now.

FINAL FANTASY CRYSTAL CHRONICLES

■ Another title built around the idea of multiplayer, this *Final Fantasy* spin-off title enables each player connected to a Game Boy Advance to control their in-game character on the TV and access menus on the handheld without pausing the gameplay.



THE LEGEND OF ZELDA: FOUR SWORDS ADVENTURES

■ Arguably the biggest title to harness the power of the link cable, *Four Swords* not only makes use of the Game Boy Advance in its single-player mode – allowing the handheld to be used as a controller – but also permits additional Game Boys to be hooked up for multiplayer.

METROID FUSION / METROID PRIME

■ This link-up between two *Metroid* games is a good example of how content could be unlocked using the cable. It was possible to access the hidden version of the NES *Metroid* and gain access to the Fusion Suit for use in *Metroid Prime* – plenty of incentive to make the effort.

“It is fondly remembered for having substantial titles”
Paul Davies

▶ that Nintendo and the third parties who worked on its hardware were dabbling with such groundbreaking concepts 20 years ago.

While its forerunner managed to last a decade, the Game Boy Advance had a surprisingly short lifespan – which makes its sales of over 80 million even more impressive. By 2004 Nintendo was set to release a new handheld, but interestingly it didn't initially position the Nintendo DS as a successor to the GBA. Instead, it was officially referred to as a 'third pillar' and to reinforce this stance the GBA hardware was refreshed a third time in the form of the Game Boy Micro. Cheap, compact and well-designed but lacking support for monochrome and Game Boy Color cartridges, the Micro has the distinction of being the last console to feature the Game Boy branding. When the DS became a runaway hit, the writing was on the wall for the Micro – especially as the DS was backwards-compatible with GBA software, making the smaller console redundant.

Even if the Micro had been a success, the issue for Nintendo was that developers were flocking to the DS and leaving the GBA in the dust. While some late releases proved that the hardware was still capable of delivering amazing experiences – *The Legend of Zelda: Minish Cap* being one example – it was obvious that the DS had picked up the slack and Nintendo's early insistence that the DS and Game Boy Advance could happily coexist began to sound alarmingly naive. Third-party studios switched focus to the newer system and Game Boy Advance titles began to dry up.

» [GBA] The *Super Mario Advance* series spanned four games and updated some of the Italian plumber's finest 8-bit and 16-bit titles.

» [GBA] *Astro Boy: Omega Factor* was released in the west to coincide with a new *Astro Boy* television series.

The retirement of the Game Boy name was significant at the time. For Nintendo, the brand had been its equivalent of the Sony Walkman – a 'catch-all' name which had become a byword for handheld gaming. However, the moniker had connotations that Nintendo was perhaps eager to move away from; it suggested the product was focused at children, while the DS would achieve commercial success by catering not only for children but also adults, thanks to its *Brain Training* series. "My guess is that the branding went because Nintendo wanted the DS to appeal to a much wider audience," says David. "Given how successful the DS was, I wouldn't like to argue against that decision." Indeed, the results speak for themselves – the DS has sold over 150 million units worldwide since launch and is the best-selling handheld of all time, and the second-best-selling videogame system ever, after the PS2.

Even so, the Game Boy Advance has an important place in gaming history. It was arguably the first handheld to deliver an experience which wasn't held back by hardware limitations. "The GBA was the first handheld system that allowed you to make authentic versions of the types of games people had been playing in the arcades and on consoles up to, say, the mid-Nineties," David says. "That was a major change of scope compared to Nintendo's previous handhelds. There are lots of fantastic games for Game Boy and Game Boy Color, but the ones that work best are tailored to the format – and the format was so limited that not everything was going to work," Paul agrees. "It was like a handheld SNES, and that was a big deal. It proved to be a strong platform in itself, and is fondly remembered for having substantial titles, similar in scope to the best of the 16-bit era." While Nintendo has seemingly retired the Game Boy brand, David has a hunch that we've not heard the last of it. "Successful brands do tend to have an inherent value. The Game Boy name could well return at some point, or maybe they'll reinvent the Virtual Boy for a face-off against Oculus Rift?" ✱

ESSENTIAL ORIGINALS

The Game Boy Advance was home to many new titles

NINJA COP

■ One of Hudson Soft's most underrated classics, *Ninja Cop* (*Ninja Five-0* in North America) borrows elements of *Shinobi*, *Bionic Commando* and *Elevator Action* to create one of the most original and playable action titles on any handheld. Copies are now quite hard to come by.

GOLDEN SUN

■ An all-new RPG series from *Shining Force* studio Camelot Software Planning, *Golden Sun* was one of the GBA's big early exclusives and spawned two excellent sequels, one on GBA and the other on the Nintendo DS. Sporting attractive visuals and excellent music, this has stood the test of time better than most GBA releases.

WARIOWARE INC: MEGA MICROGAME$!

■ *WarioWare Inc* was like a breath of fresh air when it launched in 2003. Made up of a series of short-burst minigames and packed with the kind of zany humour which is practically timeless, this superb slice of GBA brilliance remains the most pure entry in the entire series.

REBELSTAR: TACTICAL COMMAND

■ *Rebelstar* is the work of strategy supremo Julian Gollop and his brother Nick, and plays like a scaled-down version of Gollop's original *X-Com* game. The deep and rewarding gameplay is augmented by some excellent anime-style graphics, and it's a crying shame this didn't receive more attention upon release.

MARIO VS DONKEY KONG

■ While this GBA exclusive stars two famous Nintendo characters, the unique puzzle platforming gameplay was refreshingly new, and laid down a template which is still be utilised to this day. Guiding those adorable Mini-Mario toys to the exit is harder than it sounds.

TOP 25 GAME BOY ADVANCE GAMES

It might not have had the longest lifespan, but Nintendo's handheld had more than its fair share of incredible games. Readers voted for over 150 different games, but only 25 can be considered truly elite – Nick Thorpe starts the countdown...

25 Gunstar Future Heroes

■ DEVELOPER: **Treasure/Hitmaker**
■ GENRE: **Run-and-gun** ■ YEAR: **2005**

It feels more like a remake, but the return of *Gunstar Heroes* is packed with variety and some great throwback sections. Thanks to Treasure's programming, it's also one of the system's most impressive games.

24 Sonic Advance

■ DEVELOPER: **Dimps**
■ GENRE: **Platformer** ■ YEAR: **2001**

It was almost heretical in 2001, but Nintendo's handheld proved to be a fine home for Sega's mascot. The first game in the *Advance* trilogy is the best of the bunch, sticking to what made the Mega Drive games great.

23 Super Mario Advance 3: Yoshi's Island

■ DEVELOPER: **Nintendo**
■ GENRE: **Platformer** ■ YEAR: **2002**

The GBA was home to quite a few conversions of great SNES games, and *Yoshi's Island* is one of the very best. Very few compromises were made to bring the Super FX 2-powered original to the portable system.

22 F-Zero: Maximum Velocity

■ DEVELOPER: **Nd Cube**
■ GENRE: **Racing** ■ YEAR: **2001**

Who needs full 3D when you can have the retro delight of Mode 7-style rotating race tracks? This sequel to the SNES classic delivers a brand-new set of vehicles and tracks, but keeps the classic fun.

21 Rhythm Tengoku

■ DEVELOPER: **Nintendo SPD**
■ GENRE: **Rhythm action** ■ YEAR: **2006**

The very last first-party release for the GBA didn't make it out of Japan, but the thriving import market lapped up the addictive beat-based minigames. Sequels for the Nintendo DS, Wii and 3DS followed.

6 REASONS TO REVISIT KANTO

20 Pokémon FireRed & LeafGreen

■ DEVELOPER: **Game Freak**
■ GENRE: **RPG** ■ YEAR: **2004**

The original *Pokémon* games on the Game Boy were mind-blowingly successful games, but they weren't perfect. What's more, they weren't cross-compatible with the new Game Boy Advance games, so there was no way to get your precious Squirtle off that old cartridge. Fortunately, these remakes not only ensured that players could once again catch 'em all, they improved significantly on the originals with a wide range of new features.

Pokémon boast **all-new moves and abilities** introduced in the second and third-generation games, allowing for more complex battle strategies.

First-generation Pokémon all retain their later evolutionary lines, so you can pick up the likes of **Pichu, Magby, Crobat, Kingdra and Slowking.**

You can transfer Pokémon from *FireRed & LeafGreen* to the DS and 3DS games, allowing you to **preserve over a decade of progress.**

The monochrome and often ugly sprites of the original games have been replaced with far more appealing and on-model, **full-colour designs.**

You can now **breed your Pokémon**, providing the opportunity to pass down moves and stats in an attempt to get the best possible combination.

There's a much **more involved post-game** than in the originals – you can visit the Sevii Islands, catch legendary Pokémon and even fight the Elite Four again.

PERFECTION IN YOUR POCKET

19 Super Mario Advance 2: Super Mario World

■ DEVELOPER: **Nintendo EAD**
■ GENRE: **Platformer** ■ YEAR: **2001**

When we asked our readers to name the very best games ever for issue 150 of **Retro Gamer**, *Super Mario World* was the one that topped the epic list due to its superlative level design, structure and sense of adventure. Since Nintendo saw fit to give it a portable outing on the Game Boy Advance, it stands to reason you'd be seeing it in this list too – it wasn't new, but it was a near-perfect game very closely replicated for handheld players.

Of course, there's a bit more to this release than being just a straight conversion of the SNES original. The colours have been lightened a bit to help owners of early Game Boy Advance models, there's a brand-new intro sequence, and there are now Dragon Coins in levels that didn't originally have them.

NEW TWISTS ON OLD WARES

18 Wario Ware Twisted

■ DEVELOPER: Intelligent Systems
■ GENRE: Minigame collection ■ YEAR: 2004

■ ***Wario Ware Twisted*** **included both a gyro sensor and a rumble feature, allowing for motion-controlled games with a force-feedback feature.**

■ Unlike the first game, *Wario Ware Twisted* features minigames which require you to turn your system around – sometimes through a full-360 degrees.

■ **Despite the fact that the cartridge houses the gyro sensor, the game works identically on all compatible hardware (although we don't recommend using the Game Boy Player).**

■ *Wario Ware Twisted* wasn't released in Europe due to the presence of mercury within the gyro sensor – a banned substance in electronics within the European Union.

SUPER RPG BROS.

16 Mario & Luigi: Superstar Saga

■ DEVELOPER: AlphaDream ■ GENRE: RPG ■ YEAR: 2003

Having already had *Super Mario RPG* and *Paper Mario*, Nintendo's portly plumber wasn't satisfied with his level of role-playing stardom and roped his brother in for another new spin on the genre. Vibrant sprite work, genuinely amusing dialogue and simultaneous control of the brothers make this a treat.

WAR NEVER CHANGES (MUCH)

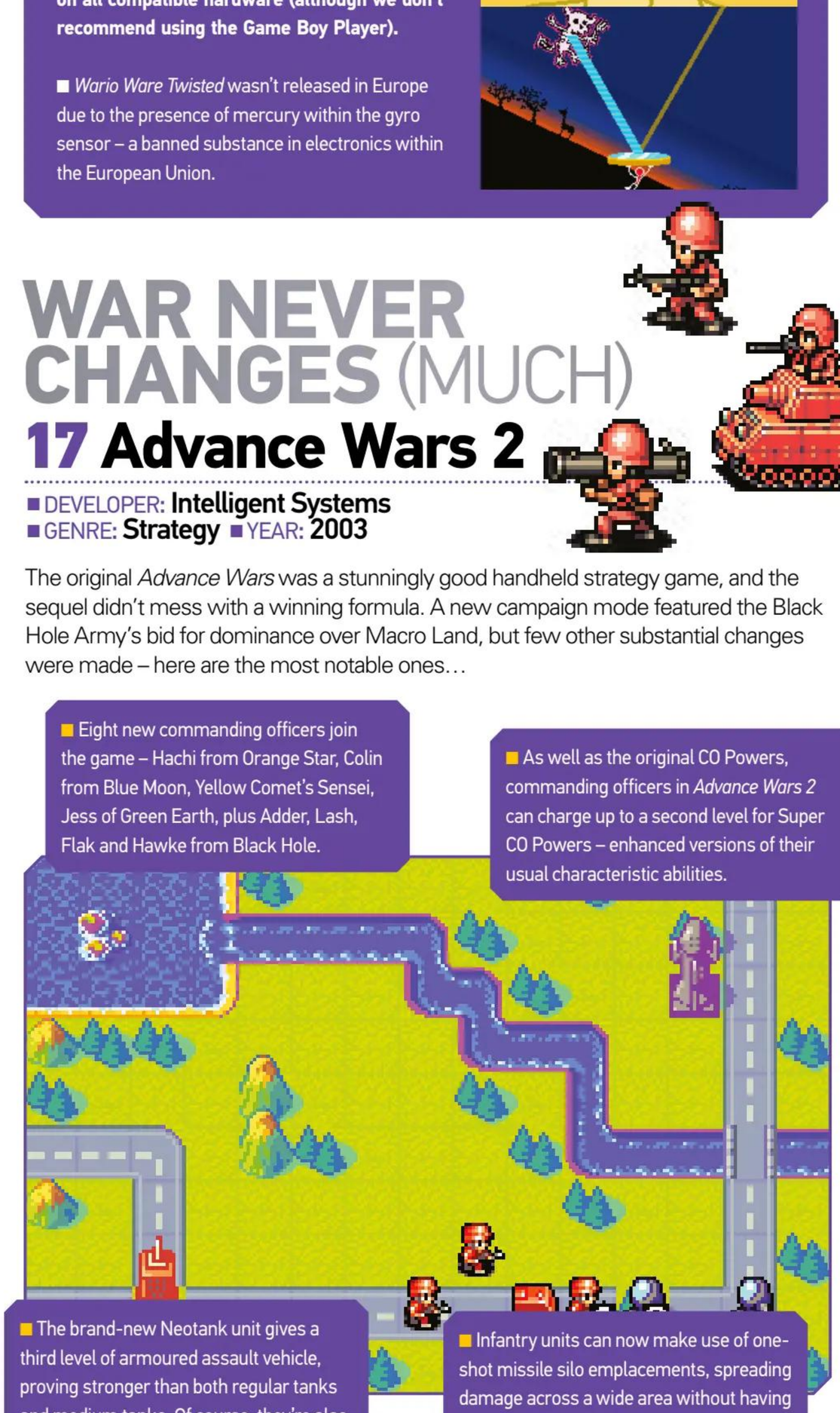
17 Advance Wars 2

■ DEVELOPER: Intelligent Systems
■ GENRE: Strategy ■ YEAR: 2003

The original *Advance Wars* was a stunningly good handheld strategy game, and the sequel didn't mess with a winning formula. A new campaign mode featured the Black Hole Army's bid for dominance over Macro Land, but few other substantial changes were made – here are the most notable ones…

■ Eight new commanding officers join the game – Hachi from Orange Star, Colin from Blue Moon, Yellow Comet's Sensei, Jess of Green Earth, plus Adder, Lash, Flak and Hawke from Black Hole.

■ As well as the original CO Powers, commanding officers in *Advance Wars 2* can charge up to a second level for Super CO Powers – enhanced versions of their usual characteristic abilities.



■ The brand-new Neotank unit gives a third level of armoured assault vehicle, proving stronger than both regular tanks and medium tanks. Of course, they're also more expensive.

■ Infantry units can now make use of one-shot missile silo emplacements, spreading damage across a wide area without having to get up close and personal with the enemy's forces.

RIGHTING THE WRONGS OF THE PAST

15 Final Fight One

■ DEVELOPER: Capcom ■ GENRE: Beat-'em-up ■ YEAR: 2001

In the late Eighties, you couldn't find a better arcade beat-'em-up than Capcom's *Final Fight*, so it's easy to understand why SNES owners would have been excited to get their hands on a conversion. Unfortunately for them, it wasn't all it could be – not only was it missing an entire level, one third of the protagonists, Guy, had done a runner and you couldn't even play a multiplayer game with the remaining characters Cody and Haggar. It wasn't a bad beat-'em-up, but it wasn't the experience that fans had hoped for.

Thankfully, Capcom was able to rectify all those mistakes on the GBA. The SNES visuals have been pulled across, but this time the game has the Industrial Area, you can play as all three characters, there are more enemies on-screen and with a link cable you can even play co-op games. There are even some new additions for fans – each boss is now preceded by a dialogue scene, and the *Street Fighter Alpha 3* versions of Cody and Guy can be unlocked as alternate characters. It might just be the definitive version of the game.

RUMBLE WITH THE BOSSES

14 Drill Dozer

■ DEVELOPER: **Game Freak** ■ GENRE: **Platformer** ■ YEAR: **2005**

There's more to Game Freak than *Pokémon*, although you wouldn't know it from the company's Noughties output – *Drill Dozer* is the only original IP the company developed during that entire decade. Luckily, it's an excellent platformer with a cool central mechanic. You take control of Jill, a member of the Red Dozers bandit gang and pilot of the powerful Drill Dozer. This vehicle can drill through walls, enemies, barriers and more, with more durable objects requiring you to shift to higher gears. The cartridge includes a built-in rumble feature, allowing you to really feel the carnage you're causing.

CROOG

This is your big bad guy, and in your early encounters he'll use this neat scorpion robot to attack you. You have to counter its drill with your own to damage it. After taking sufficient punishment, the boss will transform – and that's only the start of your troubles with Croog.

Haunted Statue

This malevolent masonry is possessed by an evil spirit, and is quite happy to splat you with its spiked mace! However, those spikes can retract if they make a big impact on the ground – when they do, you'll get an opportunity to drill into the mace and damage your enemy.

CARRIE

Carrie's a detective, and thus on the side of the forces of good. Of course, you're a bandit, so you're not exactly on the law-abiding side, which will bring you into conflict often. In this form, drill into the cable that connects the two halves of her police-bot to win.

Tank Dozer

Skullkers aren't particularly formidable enemies, so some of them will try to improve their odds by manning tanks. These are easy to take out – just drill into the front hole and accelerate to third gear. However, they have the ability to strike in tandem, so watch out...

13 Pokémon Ruby, Sapphire & Emerald

■ DEVELOPER: **Game Freak**
■ GENRE: **RPG** ■ YEAR: **2003**

Unsurprisingly, the only brand-new *Pokémon* adventures for the Game Boy Advance were its bestselling games. Two-on-two battles were introduced for the first time, and 135 new creatures were available to catch – however, it was also the first set of games in the series in which you could no longer catch 'em all.

12 Castlevania

■ DEVELOPER: **Konami Computer Entertainment Kobe**
■ GENRE: **Action-adventure** ■ YEAR: **2001**

It might not be Koji Igarashi's favourite *Castlevania*, but the first of the series' three Game Boy Advance versions is a hit with fans. Despite dark visuals unsuited for the original machine's non-lit screen, the game impressed with a structure that was reminiscent of the PlayStation classic *Symphony Of The Night*.

11 Final Fantasy Tactics Advance

■ DEVELOPER: **Square Enix**
■ GENRE: **RPG** ■ YEAR: **2003**

This follow-up to the excellent PlayStation spin-off *Final Fantasy Tactics* is a masterful isometric strategy RPG, and since its plot is standalone you can jump right in. The most striking feature of this game is the Laws system, in which in-game judges forbid certain actions and reward others.

10 Golden Sun

■ DEVELOPER: **Camelot Software Planning**
■ GENRE: **RPG** ■ YEAR: **2001**

There's no shortage of traditional Japanese RPGs on the Game Boy Advance, but this original effort even beats out beloved classics like *Final Fantasy VI* in your voting. The protagonist Isaac and his companions are out to stop alchemy from returning to the world of Weyard, in an attempt to prevent worldwide conflict. The most striking feature of the game is the ability to assign Djinn creatures to characters, altering their stats and classes as well as granting the ability to perform summon spells.

9 Fire Emblem

■ DEVELOPER: **Intelligent Systems**
■ GENRE: **Strategy** ■ YEAR: **2003**

After 13 years and six untranslated games, the *Fire Emblem* finally made its western debut on the Game Boy Advance, and it was more than worth the wait. Excellent tactical battles and the ability to permanently lose your characters are the defining features of this game, which offers a substantial single-player campaign. Unfortunately for those of you that wish to pick up *Fire Emblem* now, scarcity has driven the second-hand value far above its original retail price.

8 Astro Boy: Omega Factor

■ DEVELOPER: **Treasure/Hitmaker**
■ GENRE: **Beat-'em-up** ■ YEAR: **2003**

Osamu Tezuka's famous creation gets an awesome beat-'em-up, courtesy of Sega's Hitmaker studio and technical wizards Treasure. What sets the *Omega Factor* apart from the rest is the nonlinear structure that sees you jumping through time in an attempt to avert disaster, uncovering new and unseen parts of old levels in the process.

A NEW STYLE FOR **ANCIENT EVIL**

7 Castlevania: Aria Of Sorrow

■ DEVELOPER: **Konami** ■ GENRE: **Action-adventure** ■ YEAR: **2003**

Castlevania is a series that takes place in the past. That's a fundamental truth of the franchise, and yet *Aria Of Sorrow* discards it with confidence to achieve a setting where Dracula has been revived in 2035. However, beyond the modern clothing of protagonist Soma Cruz, this is the kind of exploration-focused *Castlevania* that people have known and loved since Koji Igarashi's initial work on *Castlevania: Symphony Of The Night*. The big new feature here is the Tactical Soul system, which allows players to swap between abilities gained from defeating various enemies.

SWEET **SOUL** BROTHER

Learn how the Tactical Soul system works

Bullet Souls

These red-coloured souls grant Soma the ability to use additional weapons, like the old sub-weapon system of *Castlevania* past. These include Eagle Shot, the ability to hurl eagles, Stone Beam, which is gained from the cockatrice and petrifies enemies, and Last Scream, in which you literally murder enemies with your voice.

Guardian Souls

These blue-coloured souls allow you to summon familiars and even transform into various nasty beasts. These souls include Devil Form, in which you become a devil and charge into enemies, Bat Form, which grants you the ability to fly about the castle, and Guardian Shadow Knight, which gives you an ally in battle.

Enchanted Souls

Yellow souls grant some kind of special property without the use of MP, but only one can be equipped at any time. These include Search Eye, which identifies the breakable walls so often found in *Castlevania* games, VIP, which lowers the price of goods in shops, and Deep Seeker, which allows you to walk underwater.

Ability Souls

Silver-coloured souls normally come via bosses, and unlike the other kinds of souls they're always active and don't consume any MP. These include things like the Back Dash, allowing you to quickly escape danger, Double Jump, which is something of a Ronseal ability, and Comet Kick, an extra attacking move.

MICRO GAMES, **MEGA FUN**

6 Wario Ware Inc: Minigame Mania

■ DEVELOPER: **Nintendo R&D1** ■ GENRE: **Minigame Collection** ■ YEAR: **2003**

Many of the best Game Boy Advance games are sequels and remakes, so a brand-new and innovative game is even more highly prized than usual – and *Wario Ware Inc* is just such a game. The premise is simple: a rapid-fire procession of minigames, each with a singular goal and lasting no more than a few seconds at a time. The key to the game's appeal is variety – you never know what's coming next, and you'll be pushed hard as the speed increases and your reflexes struggle to keep up. Deservedly, this game was followed up by several sequels.

WARIO WAREHOUSE A selection of the tiny games you'll take on in Wario Ware Inc...

5 Metroid: Zero Mission

■ DEVELOPER: **Nintendo R&D1**
■ GENRE: **Action-adventure** ■ YEAR: **2004**

When discussing how to follow up on *Metroid Fusion*, one of the developers suggested a conversion of *Super Metroid*, but Yoshio Sakamoto had other ideas. As a veteran of the series, Sakamoto decided to return to the roots of the series with a full remake of the original *Metroid*.

The presence of both *Metroid Fusion* and *Metroid: Zero Mission* on the GBA was beneficial. Both games offered different takes on the same template with *Zero Mission* favouring a more traditional *Metroid* experience.

HOW **MINISH CAP** ENHANCED ZELDA

4 The Legend Of Zelda: The Minish Cap

■ DEVELOPER: **Capcom** ■ GENRE: **Action-RPG** ■ YEAR: **2004**

■ Unlike the vast majority of *Zelda* games, this one wasn't developed by Nintendo – instead, it was outsourced to Capcom.

■ **Rather than manipulating time or the wind, Link is able to shrink in size in order to interact with the bug-sized Minish race.**

■ For the first time in a handheld *Zelda*, Link can learn new sword techniques as he progresses throughout the game.

■ **The brand-new Kinstones are pickups that, when fused, can yield rewards such as Rupees, sidequests and more.**

■ Many new gameplay elements have been added from the 3D games, including rolling when running and the icon-based HUD.

RETRO RACING **RIOT**

3 Mario Kart Super Circuit

■ DEVELOPER: **Intelligent Systems** ■ GENRE: **Racing** ■ YEAR: **2001**

When *Super Mario Kart* first graced our consoles in 1992, no home console was capable of anything like the rotating racetracks it displayed. Less than a decade later, the flagship technique best known as Mode 7 was positively retro, swept aside by the full-3D visuals of the 32-bit and 64-bit consoles. With a bit of programming wizardry, the GBA was capable of polygonal magic too – yet *Mario Kart Super Circuit* stuck resolutely to the flat racetracks of its SNES forebear.

That appeal to retro sensibilities was key to the appeal of *Mario Kart Super Circuit*. The original game is one of the most beloved racers of all time, and there was far more value in tapping into that than making a cut-back 3D racer.

Mario Kart Super Circuit doesn't include any new items, and the character roster is carried over from *Mario Kart 64*. What it does have is 20 new racetracks to conquer, each of which is designed to the standards of the original game. Once you're done with those, you can revisit the 20 tracks from *Super Mario Kart* as well.

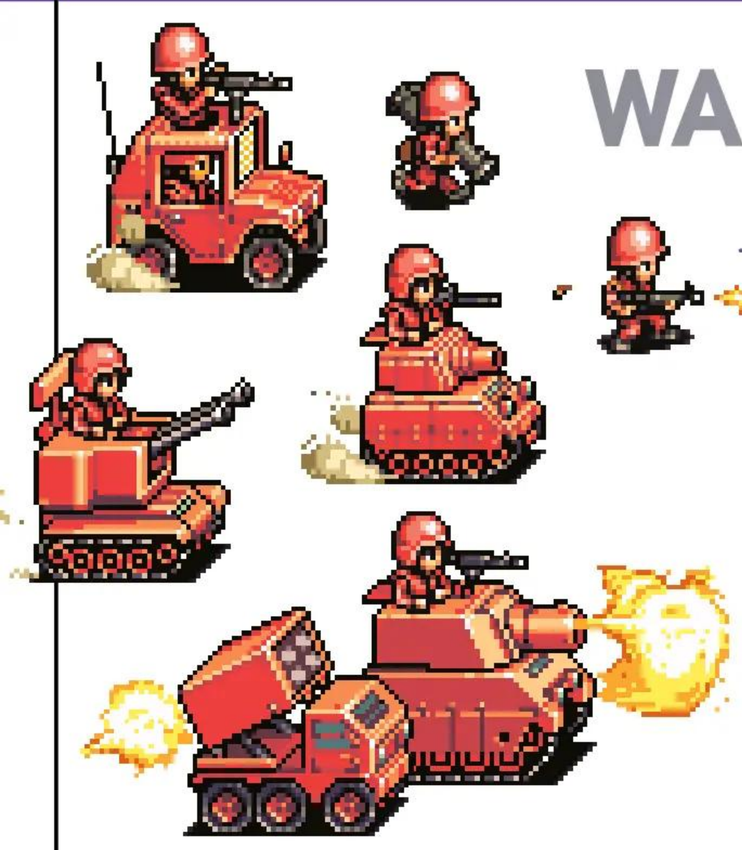
Mario Kart Super Circuit didn't need to reinvent the wheel, and doesn't. It just provides a whole bunch of new content for a formula that worked very well to begin with, and does so in a package you can fit in your jeans. The Game Boy Advance has a superb reputation for games that play to and build upon your nostalgia, and *Mario Kart Super Circuit* is one of the reasons why.

WAR HAS NEVER BEEN **SO CUTE**

2 Advance Wars

■ DEVELOPER: **Intelligent Systems** ■ GENRE: **Strategy** ■ YEAR: **2001**

Up until the launch of the Game Boy Advance, a lot of Intelligent Systems' excellent work in the turn-based strategy genre was unfamiliar to most players outside of Japan – there were six *Wars* games prior to *Advance Wars*. Still, the developer quickly made up for lost time. *Advance Wars*' dinky-looking tanks and cutesy soldiers provided a universal appeal, with accessible yet deep strategic gameplay to back it up. With a lengthy single-player campaign, excellent multiplayer component and a range of commanding officers, each with their own unique powers to utilise, *Advance Wars* will keep your inner strategic general satisfied for ages. You can read about the COs and their powers below.



Nell
Lucky Star – All units gain a luck boost, potentially increasing damage.

Sonja
Enhanced Vision – Increases vision by one unit, player can see into forests.

Max
Max Power – Direct fire units get 25 per cent bonus and one extra movement unit.

Andy
Hyper Repair – Increases all units' HP by 2 .

Drake
Tsunami – Deals 1 damage to all enemy units (except those at 1HP).

Olaf
Blizzard – Instant snow storm, lowering enemy movement range dramatically.

Sturm
Meteor Strike – A strike deals 4HP damage to all targets within a three-unit radius.

Kanbei
Morale Boost – Infantry receive a 20 per cent offensive and defensive bonus.

Sami
Double Time – Units have no movement penalties and receive stat boosts.

Eagle
Lightning Strike – Units gain an extra turn, but with stat penalties.

Grit
Snipe – Indirect fire units gain 65 per cent offensive boost and two movement units.

FUSING OLD AND NEW

1 Metroid Fusion

■ DEVELOPER: **Nintendo R&D1** ■ GENRE: **Action-adventure** ■ YEAR: **2002**

The Game Boy Advance was one of the very first platforms to recognise and cater to nostalgic gamers in a big way, and this list is all the evidence you need to support that. Conversions and remakes of Eighties and Nineties games make up a fifth of the list, and that's a trend that continues right through the voting – for example, games that narrowly missed the cut include the likes of *Doom* and *The Legend Of Zelda: A Link To The Past*. But the true appeal of the Game Boy Advance wasn't that it housed a fine retro library in your pocket – it was the fact that it offered a home to classic 2D game designs that had become lost in the home console world.

That's why *Metroid Fusion* is so brilliant. After Samus Aran's eight-year absence as a star character, Nintendo could have provided us with a simple conversion of *Super Metroid* and most people would have been happy. Instead, the developer went one better and delivered a true successor, a brand-new adventure created with the design sensibilities of the SNES classic.

Like its predecessors, *Metroid Fusion* is an exploratory platformer that places Samus alone in a hostile environment. The Biologic Space Laboratories research station has been overrun by the deadly X parasite, and Samus has to investigate what's happening and ultimately stop it. Of course, since she's lost all of her powers due to her own X infection, Samus must reacquire powers like the missiles and iconic Morph Ball in order to progress through the station.

Metroid Fusion doesn't allow for quite the same level of freedom and sequence-breaking as its predecessors, but the trade-off is a stronger narrative and a much more impressive atmosphere. In a large part, this can be credited to the SA-X, a ruthless and intelligent foe that stalks Samus throughout the game. While all of the encounters with it are scripted events, playing through for the first time and not knowing when you're going to be ambushed by a foe that can outgun you makes for some very real tension.

There's no area that *Metroid Fusion* doesn't excel in. It looks lovely, with vibrant colours and detailed sprites. It sounds great, with ominous music accompanying your every step. It plays superbly, with tight controls and excellent stage design. It wasn't necessarily the game we expected to top this list, but there's no denying that it deserves to.

ICONIC VILLAIN: SA-X

We extrapolate why Metroid Fusion's antagonist is so iconic

STAGE 1

■ The SA-X was formed from parts of Samus Aran's old Power Suit, which had been surgically removed and sent to quarantine after both she and the suit had been infected with the X parasite.

STAGE 2

■ The X parasites can obtain the physical appearance, intelligence and memories of their hosts, and even mimic technology. Thus, the SA-X is essentially a clone of a fully-powered Samus Aran, with all of her characteristic abilities and weaponry.

STAGE 3

■ Metroids are the natural predators of X parasites. Samus was cured with a treatment made from Metroid cells, and she's taken on some of its biological traits – most notably, weakness to the cold. The SA-X can detect this and will fight you with the Ice Beam.

STAGE 4

■ During your initial encounters with the SA-X, you'll be no match for it – you'll either have to hide in an inaccessible area or simply run like hell, dodging and weaving through the environment as it unleashes the full force of Samus' arsenal.

STAGE 5

■ While the SA-X attacks in the same places during every game, there's often basically no warning that it's coming, so you feel truly hunted by this creature. As soon as you spot it, it's time to take action or you are dead meat.

STAGE 6

■ X parasites can reproduce asexually, and that means that SA-X isn't necessarily a singular foe. There could be two, 20, 200 or even more – and if a single one escapes the research station, it'll kick off an enormous galactic plague. Good luck!

ESSENTIAL GAME
Pathway To Glory

This turn-based strategy game arrived at a rather unfortunate time, as it was easily overshadowed by a glut of World War II games on more popular platforms. That's a shame, because this is the best exclusive to be released in the short life of the N-Gage. The game uses detailed 2D visuals rather than the system's much-touted 3D graphics, but does take advantage of the system's multiplayer capabilities, offering local play via Bluetooth and online play through N-Gage Arena. A sequel, titled *Pathway To Glory: Ikusa Islands,* was released in 2005 and was of similarly high quality.

N-Gage

» **MANUFACTURER:** Nokia » **YEAR:** 2003
» **COST:** £299.99 (launch), £70+ (today, boxed, unlocked), £50+ (today, unboxed, unlocked)

With mobile phones having become widely adopted around the turn of the millennium, Finnish mobile phone giant Nokia felt that gamers would prefer not to carry both a dedicated handheld console and a phone. To that end, it created the N-Gage, a phone with powerful 3D graphics hardware and dedicated, proprietary games distributed on MMC memory cards. Nokia gained support from major publishers including Electronic Arts, Activision, Sega, THQ and Eidos, with early highlights including conversions of *Tomb Raider*, *Tony Hawk's Pro Skater* and *Sonic Advance* (renamed *Sonic N*).

The attempt to provide a hybrid phone and console resulted in a number of uneasy compromises that left the N-Gage unsuited to either task. As a gaming device, the N-Gage suffered from the use of a vertically oriented screen, and a game slot that could only be accessed by removing the battery. As a phone, the system's unusual orientation was far less of a problem than the choice to position the speaker and microphone on the side of the device. These flaws and a lack of desirable exclusive games led to very slow sales, prompting Nokia to reboot the project with the revised N-Gage QD model just seven months after launch. ✱

N-Gage fact

■ The N-Gage lives in infamy as the inspiration for the 'sidetalking' meme in which people pretended to speak into the sides of devices held to their heads, often those of a large and impractical nature.

PROCESSOR: 32-BIT ARM920T CPU (104 MHZ)
RAM: 16MB SDRAM
GRAPHICS: 176X208 DISPLAY, UP TO 4,096 COLOURS ON-SCREEN, SOFTWARE 3D RENDERING
AUDIO: MONOPHONIC, POLYPHONIC AND MP3 SOUNDS SUPPORTED, PLUS FM RADIO
MEDIA: MMC CARD (UP TO 2GB)
NETWORKING: GPRS MOBILE INTERNET CONNECTION, BLUETOOTH
OPERATING SYSTEM: NOKIA SYMBIAN 6.1

SYSTEM SUPPLIED BY **EVAN AMOS**

SELECT
START
A
B
NINTENDO DS
MIC

-HISTORY OF THE-

NINTENDO DS

How a second screen, touch technology, and huge library catered to all players gave Nintendo its biggest success

Words by Alan Wen

Although Nintendo's dominance in videogames was disrupted by the arrival of PlayStation in the Nineties, the Japanese company continued to be the leader in the handheld market, with the Game Boy selling over 100 million units and the Game Boy Advance doing just as well in the early Noughties.

But Nintendo wasn't about to rest on its laurels, especially not as Sony was also about to enter the handheld market with its glossy PlayStation Portable, while it needed to do something to make up for the disappointing sales of the GameCube. Under the leadership of Satoru Iwata, Nintendo embarked on its most revolutionary decade – one that opened up its hardware to an even wider audience than ever and would have a lasting impact.

Given the leap from the Game Boy's 8-bit hardware to the 32-bit GBA (albeit with 16-bit graphics, though some developers managed to make 3D games for it), it would have been natural for Nintendo's next handheld to be merely more powerful to go toe-to-toe with PSP. But the Kyoto company had other ideas. ▶

» Like its previous handhelds, and unlike the PSP, Nintendo elected to use cartridges for the Nintendo DS.

» The original hardware was sleek and impressive, but there was obvious room for improvement.

▶ On the surface, the Nintendo DS had a similar clamshell design as the GBA SP model and did have improved specs featuring a rendering engine and geometry engine for 3D graphics – though it was limited to 2,048 triangles per frame. Of course, as implied by the initials, standing for 'Dual Screen' (although Nintendo had also promoted it as the 'Developers' System', positioning the console as being easy and a joy to develop for), the real stand out was its two LCD screens, which had a resemblance to the old multi-screen Game & Watch devices. The most remarkable difference was that the screen on the bottom was a touchscreen, which could be interacted with a player's thumb or the packed-in stylus, which was easily slotted into a holder at the back. Other features included stereo speakers, a microphone and wireless support.

The DS's touchscreen marked the beginning of Nintendo's 'Gaming Population Expansion' strategy by providing ways for users to play intuitively – especially those who didn't traditionally play games – a strategy later seen for home consoles with the Wii's motion controls. That said, touchscreens weren't commonplace at the time. In fact, the technology had a reputation for being imprecise in previous decades. The high cost also dissuaded Nintendo's former rival Sega from embarking on its plans for a touchscreen handheld back in the early Nineties.

Longtime Nintendo fans were also not initially convinced by the dual-screen concept when the console was leaked under the internal codename 'Nitro'. But by the time the DS debuted at E3 2004, developers were jumping on board at how unconventional it all was, with a variety of tech demos (including one of Mario's face that harked back to the title screen of *Super Mario 64*) to showcase the hardware's versatility.

The DS was an affordable piece of hardware that launched at $149.99 in the US and £99.99 in the UK (although still pricier compared to its previous handhelds). In a first for the Japanese company, it also launched in the US first on 21 November 2004 to capitalise on Black Friday and the run-up to the holiday shopping season before arriving the following year in Europe on 11 March 2005.

» [Nintendo DS] Casual titles such as *Brain Training* gave the handheld a wide reach in terms of audience.

With over three million preorders in the US and Japan, far exceeding Nintendo's estimation of one million units at launch, the DS was off to a successful start and would ship 6.65 million units worldwide by June 2005. It might seem ironic that for all the hardware innovations touted that the flagship launch game was *Super Mario 64 DS*, a remake of the N64 classic with some graphical improvements and extras – however, it was also a demonstration of using the touchscreen for analogue 3D movement given the lack of an analogue stick on the handheld. Nonetheless, the pack-in demo *Metroid Prime Hunters – First Hunt* was a great way to showcase the stylus controls and local wireless multiplayer. While the minigames of *Wario Ware Touched!* and *Project Rub* (or the just-as-wild titles in other regions, *Feel the Magic: XY-XX* in the US and *I Would Die For You* in Japan) provided short bursts of wacky inventiveness of what you could do with the touchscreen, as well as blowing into the mic.

The success of the DS came from its versatile library, which gave it widespread appeal to casual and core gaming audiences. Some games, such as *Castlevania: Dawn Of Sorrow*, made minimal use of the touchscreen, others simply used the bottom screen to declutter UI from the top screen like in *Chrono Trigger*, or some, like *Sonic Rush*, used both screens to display a whole level for impressive scale. Where touch controls were essential to directly interacting with the player character, such as in *The Legend Of Zelda: Phantom Hourglass*, the gameplay focused on the touchscreen. You could even hold the DS vertically like a book, which was a popular format for casual games like *Dr Kawashima's Brain Training* – and some publishers did just release classic novels for it.

Alongside core franchises like *Mario* and *Zelda*, Nintendo actively developed new titles to entice non-traditional gaming audiences. Its biggest success, second only to *New Super Mario Bros*, was *Nintendogs*, a real-time pet simulation game where players could

THE BEST CASUAL DS GAMES

Games that anyone can just pick up and play

DR KAWASHIMA'S BRAIN TRAINING: HOW OLD IS YOUR BRAIN?

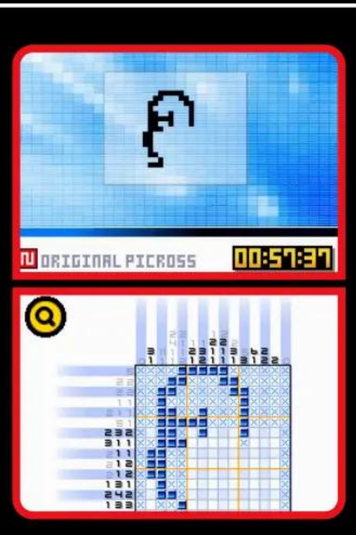
This series of puzzles, from calculations to reading, are designed to give your brain a workout to supposedly improve your brain's age. *Brain Training* showed how gaming could be good for you even for a few minutes each day.

ELITE BEAT AGENTS

Stepping into the shoes of a squad of agents sent to help people in need by cheerleading, performed through rhythm-based action, you are charged to tap and drag icons to the rhythm. Some argue that its predecessor, the Japan-only *Osu! Tatakae! Ouendan!*, is the superior game.

PICROSS DS

Although its Game Boy predecessor bombed, this pixel-based logic puzzle game came into its own on Nintendo DS as you use logic to mark the squares of a grid as either full or empty, eventually revealing a surprise picture. You can start from easy 5x5 grids up to more challenging and intricate 20x20 grids.



» [Nintendo DS] *Mario Kart DS* is the third most successful in the series, beaten only by the Wii and Switch entries.

» [Nintendo DS] The touchscreen was a versatile tool, allowing for first-person action as seen in *Metroid Prime Hunters*.

» [Nintendo DS] *Phantom Hourglass* was the first 3D handheld *Zelda*, continuing the adventures of Toon Link from *Wind Waker*.

play with, train, pet, walk, brush and wash adorable and lifelike virtual dogs using every facet of the DS, including even calling them and teaching them tricks via the microphone.

The DS's success continued to rise while Nintendo could barely keep up with manufacturing units to meet demand. This came alongside new features and support, such as the launch of the Nintendo Wi-Fi Connection service in 2005, coinciding with the launch of *Mario Kart DS*, so that users could finally play online and not just in the same room, while the microphone (as well as a headset released alongside *Pokémon Diamond & Pearl*) allowed for voice chat in supported games.

When a platform has such mainstream appeal – and you don't get more mainstream than a commercial with Beyoncé playing *Rhythm Paradise* – naturally, every publisher wanted in on the action. That led to some genuine surprise releases that no one would have expected to be on the DS, including mature titles like *Grand Theft Auto: Chinatown Wars* and multiple *Call Of Duty* games.

Developers certainly had their work cut out to adapt 3D home console blockbuster properties to portable form for the DS compared to Sony's considerably more powerful PSP, which had launched in Japan just ten days after the DS in December 2004. Nintendo, however, did not consider it as a direct competitor. Its unique handheld, after all, catered to a much wider and diverse audience and not just the hardcore gamer that still seemed to be perceived as 16-to-24-year-old males – though the DS certainly had its share of edgy marketing to play to that crowd, including a suggestive 'Touch It' ad in the UK. Despite its more narrow focus, the PSP was no slouch in the handheld battle, managing to sell over a very respectable 80 million units in its lifetime.

Fortunately, DS owners were more likely swayed by pricing than graphical fidelity, given the DS's cost was a fraction of the PSP, a mistake competitors like Sega and Atari had also made during the Game Boy years. The DS could still do modest work with 3D, as shown with the graphical update in *Mario 64 DS* but many developers wisely opted to get creative with 2D instead. Games harking back to traditional 2D games such as *Contra 4* would use the hardware to create some of the most detailed sprites not possible until then, meanwhile, games like *Chinatown Wars* and *The World Ends With You* told their stories through comic book panels instead of rendered cutscenes; there was also room for experimentation, such as *Hotel Dusk: Room 215*'s brushwork look. Perhaps one of the finest examples is *Ghost Trick: Phantom Detective*, where the characters were created in 3D first, before being rendered into 2D sprites, resulting in some of the smoothest 2D animations seen on the system.

All the while, DS users were also able to play GBA games thanks to a backwards-compatible cartridge slot at the bottom of the system, and there had still been support for that handheld since Nintendo had considered the DS's features to make it a 'third pillar' of its console line-up rather than a direct successor, with games still released for ▶

FLIPNOTE STUDIO

■ Not a game exactly but an app designed by Nintendo EAD Tokyo, freely downloadable from DSiWare that lets users create flipbook-style animations along with limited recordings of sound banks. Users could also share and download their FlipNotes on the Hatena service until it was shut down in 2013.

ELECTROPLANKTON

■ Love it or hate it, there's nothing else like this interactive music game. Well, it isn't really a 'game', but rather something to experience in the moment, without any saves. Either touch the plankton on-screen, which creates marvellous sounds, or sit back and enjoy the audiovisual spectacle in Audience mode.

THE BEST HARDCORE DS GAMES

Innovating gameplay or just stone-cold classics, these are must-plays

GRAND THEFT AUTO: CHINATOWN WARS

GTA on a Nintendo platform might have seemed a shock, yet Rockstar made one of the best games for the DS. *Chinatown Wars* made clever use of the touchscreen, though caused controversy by letting players buy hard drugs.

CHRONO TRIGGER

The best Square RPG from the Super Nintendo not called *Final Fantasy*, this time-travelling epic bucked genre tropes, with no random encounters and one of the most confident plot twists ever. It wasn't until the Nintendo DS that it finally got a PAL release, and to this day, it remains the best version.

MARIO KART DS

Using the bottom screen to show the race circuit might seem like a basic feature but the fifth *Mario Kart* title innovated in other ways as the first and only entry with a mission mode. More important, as a multiplayer-oriented title, was being able to play online with others via the Nintendo Wi-Fi Connection.

» By the time the DS Lite launched in Japan, the DS was solidified as a runaway success… but that was just the beginning.

▶ the 32-bit handheld until 2008. That said, the GBA slot was just as much intended to support other accessories that could be slotted in, such as the Rumble Pak, which was bundled with *Metroid Prime Pinball* in Japan and North America, a memory expansion pack to support online web browser Opera, and even a guitar grip controller used for *Guitar Hero: On Tour*.

As with its past handhelds, Nintendo revised the DS multiple times, though its first revision was by far the most successful. The Nintendo DS Lite launched in 2006, living up to its name as a slimmer and lighter model with a wide range of available colours, including white, black, pink, green, platinum, and turquoise, not to mention numerous limited edition models. At a cheaper price than the bulkier original in the US at $129.99 (though still £100 in the UK, while shortages actually led to Japanese retailers bumping up the price), it was an instant improvement and success.

From a casual perspective, its sleeker aesthetic, especially the default white model, gave the impression of a gadget as sophisticated as an iPod or a PDA instead of a toy, even if you were probably just doodling on PictoChat. The DS Lite alone sold

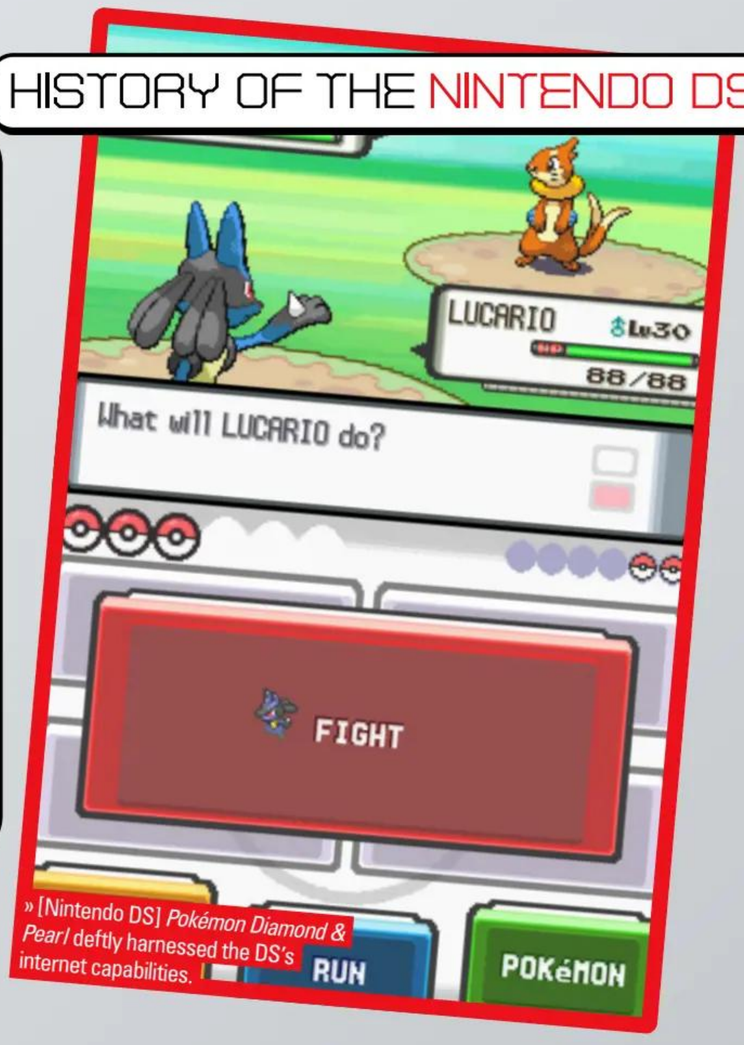
» [Nintendo DS] *New Super Mario Bros* brought a new dynamic approach to the classic side-scrolling *Mario* model.

THE WORLD ENDS WITH YOU

■ By far one of the most original RPGs on the DS as you control two characters in a battle system that uses both screens as well buttons and touch controls. It's brimming with Shibuya style as your characters find a way to escape the Underground or face being erased.

ADVANCE WARS: DUAL STRIKE

■ Before *Fire Emblem*'s resurgence, this strategy game was Intelligent Systems' prized series, as you command forces from the ground, sea, and air to strike your opponents while navigating the fog of war. *Dual Strike* also uses the dual screens in missions where you're fighting on two separate fronts.



» [Nintendo DS] *Pokémon Diamond & Pearl* deftly harnessed the DS's internet capabilities.

93.86 million units, well over the PSP's total sales, taking the lion's share of the Nintendo DS range's total lifetime sales.

A larger Lite model had also been planned but was shelved owing to just how successful the Lite was. That design was, however, recycled into the Nintendo DSi released in 2008. The lack of GBA backward compatibility may have been a turn-off for some, though the reasoning behind its removal was so that there could be a slot for external SD storage, which could make use of the new DSi shop: the handheld's very own digital distribution service similar to the Wii Shop Channel, which the older models couldn't access. Internal storage was also included meaning web browsing was possible by default without additional memory.

Full retail games weren't downloadable from the DSi shop, but it was host to hundreds of games and apps, known as DSiWare, which like WiiWare, or indeed Xbox Live Arcade and PSN at the time, provided an avenue for smaller developers to release small budget-price games. It wasn't necessarily an indie space, as many first-party releases had been cynically pared-back versions of existing games with an 'Express' label slapped on, although it was also host to some bite-sized franchise spin-offs like *Dragon Quest Wars* and *Wario Ware: Snapped!*.

Besides the larger 3.25-inch display, the real significant addition, and where the DSi supposedly gets the 'i' from, are two 0.3 megapixel digital cameras – one in front and one behind. The games that supported taking snapshots (such as the ghost-catching game *Ghostwire*), combined the capacity for taking selfies that you can also edit with software, was a move to incentivise households who might have one DS console to share to buy another one or two for themselves. A further and final revision, the DSi XL, a larger model with 4.2-inch screens launched in November 2009 in Japan and Spring 2010 in North America and Europe, with colours including bronze and burgundy (as well as white in Japan), which gave the impression of a more sophisticated elite model - indeed, one of the names considered for it was DSi Executive. The XL's western release was already old news by then as this coincided with the announcement of its successor the Nintendo 3DS, which would be officially revealed at E3 that year and launched the following year. The DS era was already coming to an end.

Some would argue its decline was being brought about by the smartphone market as the new platform to capture the mass market of casual gamers that Nintendo had been courting. Ironically, the DS's touchscreen, online and social interactions, and short daily gaming habits all paved the way for how the iPhone and App Store would get users to access and play games on the go. When you can play *Candy Crush* for free on your smartphone that can also do everything else you need, why would you splash out on a dedicated handheld console?

The DS was bottled lightning as the actual concept of a second screen struggled to work in the same way, notably with the disastrous commercial failure of the Wii U, which singlehandedly came close to undoing all of Nintendo's successes.

But what a revolutionary era it had been, as the DS had lifetime sales totalling just over 154 million units sold, the best-selling handheld of all time, and only second to PlayStation 2 by a million units as the best-selling console of all time. More importantly, for many whose first experiences of gaming came through the DS's two screens, including a greater proportion of female players, it was a platform full of boundless creative energy, in the same way, we might describe indie games being made today that aren't just dependent on raw power and following the trajectory of chasing a homogenised hit. In tandem with the motion-control Wii home console, the DS was emblematic of the fertile ground Nintendo had found to spread its joy for play. ✱

WHAT HAPPENED NEXT: THE NINTENDO 3DS

Could Nintendo's stereoscopic successor continue the DS momentum?

The Nintendo 3DS felt like a natural continuation of the DS, iterating on the features introduced with the DSi while jumping on the 3D TV bandwagon with stereoscopic 3D that didn't require dedicated eyewear. This feature, however, paled compared to more innovative elements, such as a gyroscopic motion sensor, a circular pad for 3D movement, and StreetPass – which enabled users to passively interact with other 3DS owners, sharing data used for certain gameplay features.

Its $249.99/£229.99 launch price was a massive turn-off for many, prompting Nintendo to drastically cut the price five months later and offer free games to early adopters as a goodwill gesture. It would go on to sell 75 million units: not bad considering the failure of the Wii U at the time, but a far cry from the DS's success – and it was notable that after multiple revisions the gimmicky 3D was nixed with the Nintendo 2DS range.

While DS games were backwards-compatible (however, the handheld was also region-locked), the 3DS lacked the same diverse and creative library as its predecessor, though the improved graphical capabilities meant more games catering towards traditional core gamers, such as the *Monster Hunter* series and 3D remasters of N64 *Zelda* games.

-HISTORY OF THE-

PLAYSTATION PORTABLE

AFTER CONQUERING THE HOME CONSOLE MARKET TWICE OVER, WE EXPLORE HOW THE POWER OF PLAYSTATION CAME TO HANDHELD

Words by Alan Wen

In the space of a decade, Sony had disrupted the videogame landscape forever. The PlayStation didn't just help usher in the 3D era for consoles but also turned the medium into cutting-edge mainstream entertainment that wasn't just for kids. Meanwhile its successor, the PlayStation 2, became the most successful console of all time, with over 155 million units sold. However, not content with knocking Nintendo off its pedestal and causing Sega to exit the console marketplace, the Japanese company was about to set its sights on the handheld market where the House Of Mario still remained untouched.

Sony had a strong history with portable devices, namely the Walkman, and the PlayStation Portable would be its first attempt at launching a handheld console – not including its Japan-exclusive PocketStation, which was essentially a hybrid of a memory card and a personal digital assistant that shared similarities with the Dreamcast's VMU. But where would the PSP succeed where other rival handhelds like the Neo Geo Pocket, Bandai WonderSwan and Nokia N-Gage had failed? More power.

Of course, more powerful handheld hardware was no guarantee for success in the past – look at how the Atari Lynx and Game Gear faltered to the simply monochrome Game Boy. But what Sony was proposing for the PSP went beyond what other companies had attempted. When the concept was first unveiled at E3 2003, CEO Ken Kutaragi called it "the Walkman of the 21st century", implying that it was going to be more than just a handheld for games. But for the hardcore gamers, it also had the processing and graphical power to deliver the dream of playing console-quality games in your hands.

Sure, direct comparisons with it being a handheld PS2 were somewhat exaggerated, and with only a nub on the left-hand side of the handheld for analogue control, as well as just two shoulder buttons, it wouldn't be able to replicate the feel of a DualShock controller. But by the time this sleek and compact handheld made its official debut at E3 2004, particularly with a demo of *WipeOut Pure* turning heads at just how sharp its fast-paced visuals looked on its 4.3-inch LCD, even from a distance, it suddenly made Nintendo's Game Boy Advance look ancient. While the battery life of around four to six hours might have been a sticking point like other past powerful handhelds, a rechargeable battery and effective Sleep Mode was certainly an easier pill to swallow than constantly burning through a ton of AAs.

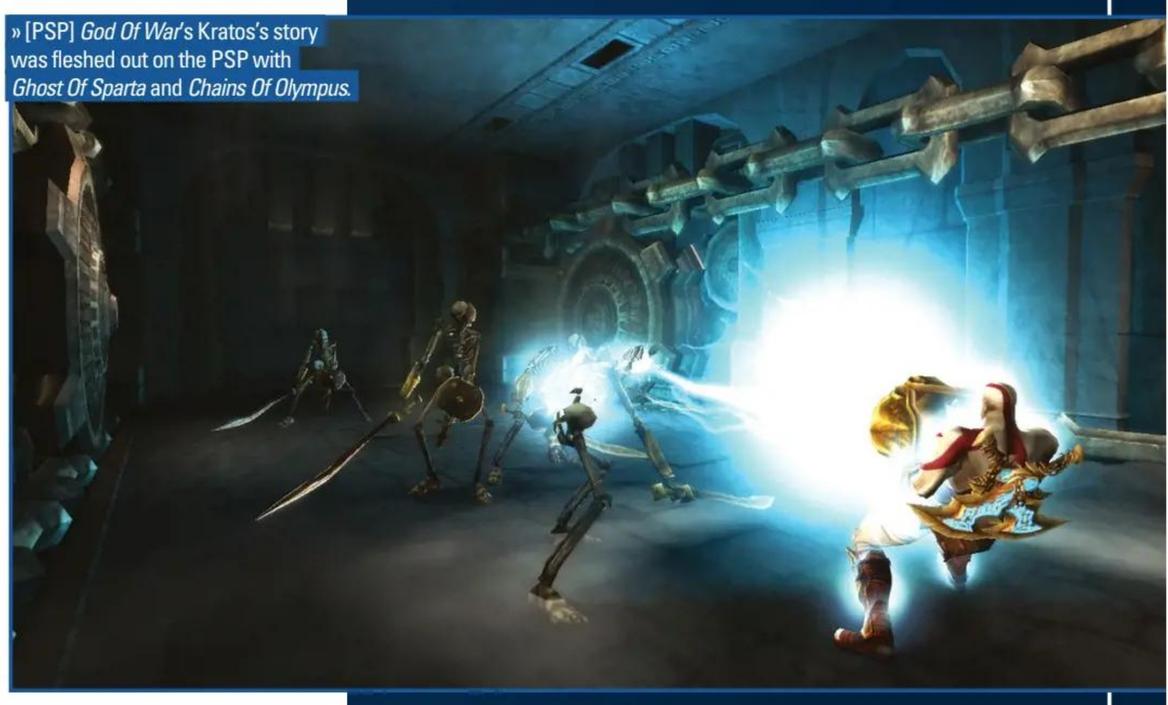
The PSP launched in December 2004 in Japan, followed by other territories in 2005. Retailing at $249.99/£179.99, it was one of the most expensive handhelds at the time, double that of the GBA (Nintendo also slashed the price of the GBA SP to £70 the year before). But the price didn't deter people who were

» [PSP] Snake got one of his best missions on the PSP with *Metal Gear Solid: Peace Walker.*

» [PSP] *Final Fantasy VII: Crisis Core* was a prequel to the luminary original *FFVII* that only recently saw a wider release.

» [PSP] Many PlayStation favourites had spin-offs on the PSP, such as *Daxter* (pictured) and *Secret Agent Clank.*

» [PSP] There's nothing like a *WipEout* game to show off the sheer power behind your system.



» [PSP] *God Of War*'s Kratos's story was fleshed out on the PSP with *Ghost Of Sparta* and *Chains Of Olympus.*

» At the time, the PSP felt like magic in the palms of your hands, the tech powering it was that remarkable.

▶ swayed by its portable power, along with renowned franchises like *Metal Gear*, *Ridge Racer* and *Spider-Man* in the launch line-up. Within two days, it had already sold half a million units, and the high demand from Japan and North America resulted in the PAL launch being delayed from March until September 2005.

Some would argue that the PSP's higher price was justified not just on the graphical quality but also its various multimedia capabilities, including video and audio playback, even doubling as an MP3 player, while later on it also offered web browsing and a means for reading digital comics. For PS2 owners, it also offered some extra functionality when connected, such as unlocking bonus content or transferring saved data.

That latter element would be further expanded with the arrival of the PlayStation 3 and the introduction of Remote Play, enabling access to the PS3 system screen on the PSP via a wireless LAN connection. With this feature, it was possible to view photos, listen to music, and watch videos stored on the PS3's hard drive. Of course, what was more enticing was being able to play PlayStation games on your PSP instead when the TV was already in use. In reality, this was actually limited to digital media, while any disc-based and copy-protected files were not supported, with only a few games actually supporting the feature.

For nostalgic gamers, however, the PSP also offered a way to replay original PlayStation titles downloaded via the PlayStation Network. Although this service didn't come into effect on the PSP until 2008, early adopters of the PS3 would be able to purchase these old, discounted games and then transfer the files to PSP via a USB cable onto the PSP memory stick. That might have been a convoluted method, while gamers are likely to remember former Sony CEO Kaz Hirai's cringe-worthy *Ridge Racer* moment at E3 2006 demonstrating this functionality, but considering the PSP couldn't feasibly offer direct backward compatibility like the PS2 and original PS3 models had with their direct predecessors, this mirrored Nintendo's strategy of offering classic titles via Virtual Console on the Wii, which wasn't available on a handheld platform until the 3DS many years later.

BITE-SIZED DISCS

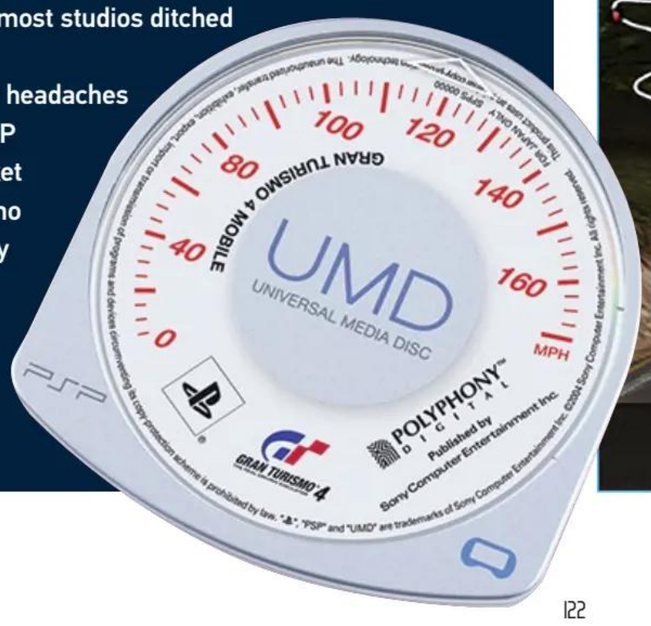
A closer look at the PSP's proprietary UMD format

Given the PSP's size, a new format was necessary to store the miniature blockbusters developers were making for it that cartridges would be insufficient for. Instead, Sony developed a proprietary optical disc format called Universal Media Discs (UMD). These were loaded onto disk cases, not unlike the company's MiniDisc format, which would slot into the handheld.

With 1.8GB storage space, more than double of CD-ROM, it was ample for the majority of PSP titles, with just a few (lengthy RPGs exclusively released in Japan) requiring two UMDs. The capability to store high-quality audio and video content also meant that the PSP also became a way to watch movies, as shops were making space for movie UMDs alongside DVDs. These also included TV shows, documentaries, music videos, and even adult films in Japan.

UMDs were, however, an expensive format, meaning they were sold at comparable prices as DVDs despite having a fraction of the storage, meaning they also lacked the extra bonus content you'd typically get with DVD releases. Within a couple years, poor UMD sales meant most studios ditched it as a home media format.

The UMD casings also had their own headaches as some would crack, rendering the PSP unable to read them, prompting a market for replaceable covers. It was perhaps no surprise that Sony sought to move away from the format with the launch of the PlayStation Network on the system and the rise of digital distribution. Nonetheless, over half of the PSP's library remained exclusively on UMD.



Although a cutting-edge handheld platform, the PSP obviously couldn't claim to be on the same level as home consoles like Xbox 360 and PS3, yet it nonetheless drew support from big publishers such as EA and its library of sports titles, as well both first-party titles and the third-party franchises associated with the PlayStation brand. Where we typically saw very simplistic downgraded ports on Game Boy or GBA, their PSP counterparts fared more favourably, so even though *Ghost Of War: Chains of Olympus* or *Grand Theft Auto: Liberty City Stories* might not be considered mainline entries of their respective series, they were just as highly regarded.

Some titles even flourished much better on handheld than on home consoles. One particular highlight was *Monster Hunter*, which first launched in 2004 on PS2 but really found its audience (in Japan, at least) with its expansive port to PSP, released in western territories under the title *Monster Hunter Freedom*, followed by *Monster Hunter Freedom Unite*. As commute-friendly quest-based hunts where it was best for up to four players to hunt together, it was the perfect game for taking advantage of the handheld's local wireless play while figuring out the games' esoteric systems together.

It wasn't all just about raw graphics on the PSP either, as the handheld was also host to games with different creative styles, brilliantly demonstrated by the launch title *Lumines*, and Japan Studio continued to develop original gems like ▶

» [PSP] While blockbuster titles stole the spotlight, there was creative brilliance on the PSP, like *LocoRoco*.

» [PSP] Of course, supreme driving sim *Gran Turismo* made a PSP appearance, and it was one of the top-selling games.

5 ESSENTIAL PSP GAMES

Mini-blockbusters you can take anywhere

METAL GEAR SOLID: PEACE WALKER

Although the PSP had multiple *Metal Gear Acid* games and *Portable Ops*, *Peace Walker* was a true Hideo Kojima joint, taking the action and stealth of *MGS4* into digestible missions as Snake builds his remote mercenary unit at Mother Base. It's no portable spin-off but rather an essential predecessor to understanding *MGSV*'s story.

GOD OF WAR: GHOST OF SPARTA

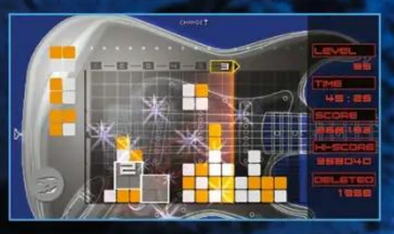
The vengeful demigod made a huge splash on the small screen, with *Ghost Of Sparta* having arguably the best graphics on the remarkable handheld, with just as bombastic setpieces in the mythical city of Atlantis. Set between the first two PlayStation 2 games, it's also a must-play for followers of the series' canon.

SHIN MEGAMI TENSEI: PERSONA 3 PORTABLE

This RPG has you vanquishing shadows in a massive dungeon during the Dark Hour, while juggling life as a high school student during the day. Although this port strips down some of the original exploration to a visual novel format, its cool style, including a catchy soundtrack, is still intact.

CRISIS CORE: FINAL FANTASY VII

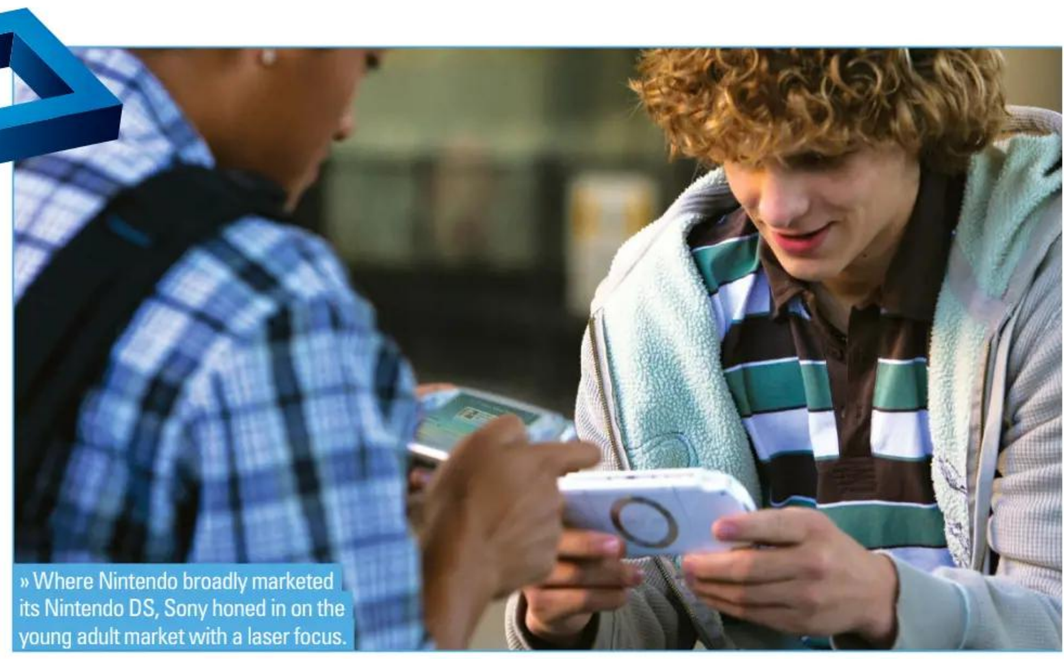
Following Zack Fair's story as a SOLDIER fighting alongside Sephiroth and Cloud, as well as his meeting with Aerith, *Crisis Core* acted as a prequel to the beloved *Final Fantasy VII*. This also differs from that game with a real-time combat system, alongside a slots-style mechanic that grants buffs and Limit Breaks.



LUMINES: PUZZLE FUSION

This PSP launch title remains timeless as do many of Tetsuya Mizuguchi's experiments in synaesthesia. As a fusion of drop-puzzler and music, you'll find yourself subconsciously rotating coloured blocks to the rhythm as your performance also changes the landscape. A blissful experience for the senses.

» [PSP] *Monster Hunter* carried the PSP to monumental success in Japan, and its jump to 3DS hurt Sony's PlayStation Vita.



» Where Nintendo broadly marketed its Nintendo DS, Sony honed in on the young adult market with a laser focus.

▶ *LocoRoco* and *Patapon*. Sure, bleeding-edge 3D looks nice, but there's only so much real estate on a small screen. For Japanese developers struggling to keep pace with western developers in the technological arms race, mid-budget RPGs actually felt more at home on PSP, with the likes of *Tactics Ogre*, and *Persona 3 Portable*. Even Falcom, traditionally a PC developer, would also embrace the platform for its sprite-based RPGs, including the *Trails In The Sky* series.

The PSP looked like a fierce competitor that should have seen Sony finally taking a significant bite into Nintendo's handheld market share as it had in home consoles. When comparing the PSP with the Nintendo DS, which had launched at the same time in Japan, both were doing very well and by 31 March 2006, the PSP's worldwide sales were at 17 million, marginally ahead of the DS's 16.7 million. At that same time, however, PSP game sales were also at 47.3 million, implying users had only bought between two or three games in that amount of time.

Over time, it was apparent that the PSP would be no match to the more affordable DS, which offered a more innovative experience through its touchscreen and dual display that also had wider appeal to casual and nontraditional gaming audiences. This also meant more developers wanted to make games for the DS. Even publishers who might have seen the appeal of a platform with greater horsepower knew to follow the money. For instance, Activision released just one *Call Of Duty* game on the PSP but went on to produce a whopping five instalments for the vastly underpowered DS.

At the same time, it could be said that its multimedia capabilities should have meant the PSP was also in competition with other similarly priced portable media players. But then the pristine compact aesthetics of an iPod that could also store tens of thousands of songs and photos, as well as over 150 hours of video was simply more attractive than the comparably bulky PSP with buttons that would have been redundant for people who didn't play games. It lacked the same mainstream pull as the millions of people buying the PlayStation 2 as an affordable DVD player that also happened to play games.

Sony would nonetheless fight its corner, iterating on the PSP design with multiple hardware revisions. Released in 2007, its first redesign, dubbed the PSP Slim in PAL territories, was a slimmer and lighter model, with a thickness of 18.6mm compared to the original's 23mm, and almost 100g lighter. The loading of its UMD games was also improved by doubling the internal RAM from 32MB to 64MB, while it also received a thinner and brighter screen. It was also the first model to introduce USB charging.

This was followed up in 2008 with the minorly iterative PSP Brite, which basically looked the same as the PSP Slim but with an even more improved LCD sporting an increased colour range and anti-reflective technology to reduce outdoor glare. It had one fundamental flaw in regards to interlacing, though, which made the image worse with noticeable scanlines and jaggies on-screen during fast-moving sequences, an issue that Sony would fail to fix, citing it as a hardware characteristic that can't be resolved with a software update.

A more significant revision came in 2009 in the form of the PSP Go. This model was smaller and lighter than its predecessor yet also boasted a larger 3.8-inch screen. That's because the controls are actually underneath it, which slides up when in use, bearing a resemblance to Sony's Mylo internet device released a few years earlier.

"Sony would fight in the PSP's corner, iterating on the handheld's design with multiple hardware revisions"

Much like that Wi-Fi-based device, the PSP Go was designed to take advantage of the PlayStation Network, with Sony envisioning all of its future titles would solely be available via digital distribution, downloaded to its 16GB internal flash memory, which could also be expanded by up to 32GB with a memory stick. That meant no UMD drive, a sticking point as it meant existing PSP users would render their existing UMD games and movies unplayable, while many titles were never made available digitally.

Retailers weren't especially happy with stocking the digital-only PSP Go either, which would have made it impossible to sell physical software alongside it, while those that did stock it went and slashed the RRP price of £224.99 down to £199.99 just a week after its launch. Considering the initially exorbitant PS3 had just been reduced to $299/£249, the PSP Go didn't look like good value. Sony would later try to relaunch it the following year in a bundle including ten free downloadable games, but it was too late.

There was also the PSP Street, a budget-priced model of the previous iterations albeit with its cheaper-looking matte finish. On the one hand, this brought back the UMD drive but also removed basic functions like stereo speakers and brightness buttons, though these features could still be accessed with headphones or by going into the system settings. But the biggest omission was Wi-Fi functionality, rendering it an offline handheld, feeling

» [PSP] *Tekken 5* received a remarkable PSP port with *Dark Resurrection*, which added new characters and balance tweaks.

completely at odds when being connected in the 21st century had become a given. Compared to the Nintendo DS's revisions, which garnered more sales and a boost to its longevity, the PSP was having diminishing returns.

While some might paint the PSP as a failure because its direct competitor was an unprecedented success, the truth is that Sony's handheld lasted a decade before it was discontinued in 2014, shipping a remarkable 80 million units in its lifetime, even if this is about half of the DS's 154 million (though it beat the 3DS's lifetime sales of 75 million). It had far better innings than Nintendo's other rivals ever did in the past and was enough incentive for Sony to follow up with a successor, the PlayStation Vita.

It might not have sustained the immediate rush of the 'wow' that players first got a glimpse of from its unveiling back at E3 2004, but it still proved to some extent that cutting-edge games and the demand for them weren't just limited to consoles, in the same way, that they used to be just limited to arcades. Nintendo, as well as the rise of smartphones, opened up handheld gaming to a far wider audience, but the PSP still had its hardcore gamers in its corner. That the likes of *Metal Gear Solid: Peace Walker*, *Final Fantasy Type-0* and *Crisis Core* would get HD ports and remasters on home consoles in subsequent years was also surely evidence that these handheld games could work just as well on the big screen.

Indeed, the Nintendo Switch and Steam Deck are even better examples today where it is possible to have parity between home and handheld platforms. It's perhaps for that reason that the most ardent supporters of PlayStation's handhelds are still hopeful that Sony may yet make a portable comeback. Admittedly, it's unlikely, as the idea had been seemingly shut down by current PlayStation head Jim Ryan, while the evolution of Remote Play, as well as the introduction of PlayStation Now, means you can already play console-quality PlayStation titles on just about any screen or device via remote or the cloud anyway. Nonetheless, as the saying goes, do not underestimate the power of PlayStation. ✱

WHAT HAPPENED NEXT: THE PS VITA

Sony's successor struggled but became an indie haven

Released in 2011, the PS Vita was meant to continue Sony's goal of delivering blockbuster experiences on handheld while also literally doubling down with touch controls both with a multi-capacitative touchscreen and a touchpad at its back. Certainly, the likes of *Uncharted: Golden Abyss* proved that it was capable of near-PS3 quality visuals, while *Tearaway* was a perfect example of a game taking full advantage of the hardware's unique features, including the built-in camera that could take pictures and videos, as well as face detection and head tracking.

Despite initial strong sales, the Vita flopped hard both against the Nintendo 3DS as well as the mobile and tablet market it was also trying to appeal to, managing to shift just four million units by the end of 2012.

But while the big publishers withdrew their support for the Vita, Sony made it work as a niche product by winning over indies and mid-budget Japanese developers, with the latter seeing more RPGs and visual novels come to the platform. Indie titles like *Hotline Miami*, *Fez*, and *OlliOlli* all found success on the Vita, remaining strongly associated with the handheld (Dennaton's ultraviolent masterpiece even makes a cameo via the Vita in *The Last Of Us Part II*).

With the release of PS4, the Vita was also positioned as a complementary device for Remote Play, while Cross-Buy meant users could buy a game that could be played between Vita and PS4 with Cross-Save. Even so, the Vita's failure is why it looks fated to be Sony's last handheld.

Gizmondo

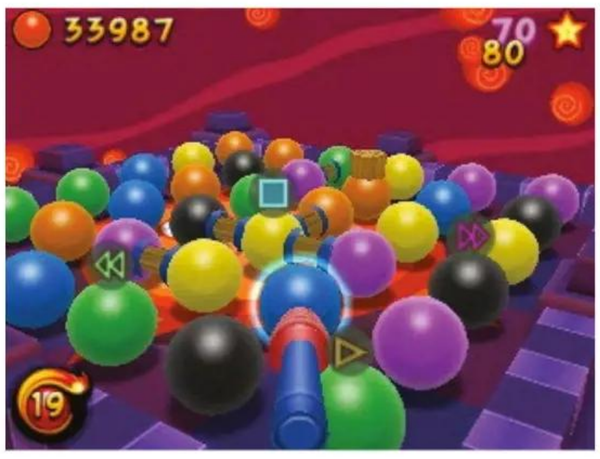
» **MANUFACTURER:** Tiger Telematics » **YEAR:** 2005
» **COST:** £229.99 (launch), £200+ (today, boxed), £150+ (today, unboxed)

When it was originally conceptualised as the Gametrac, the Gizmondo was designed to fulfil two specific needs. Firstly, it would act as a child-tracking device, by way of its integrated GPS technology. Secondly, in order to ensure that kids would be willing to carry it, it would have gaming capabilities. As development rolled on, the feature set came to resemble a modern mobile device – it had a camera, it could send text messages, it was even supposed to have an online app store. Add a nice looking case from Rick Dickinson, the former Sinclair industrial designer, and you've got the makings of a potentially competitive handheld.

The wheels fell off within a year of the March 2005 launch. Despite celebrity promotion, a slow but steady stream of games and the introduction of an ad-supported model for just £129.99, the handheld failed to sell well. The software library had expanded to 14 games by October 2005, and eight of those would accompany the system's North American launch that month. They would be the final Gizmondo games released, as Tiger Telematics collapsed into bankruptcy in February 2006, amidst news reports that a company director had ties to a Swedish organised crime group. *

ESSENTIAL GAME
Sticky Balls

Originally designed by John Pickford in his spare time while he was at Zed Two, the game transferred to Warthog when Zed Two was purchased, and was set to become a PSP game before Warthog itself was purchased, becoming Gizmondo Studios Manchester. The puzzle game vaguely resembles snooker, as you use a cue to shoot balls around a playfield. When balls of the same colour collide, they stick together – hence the title – and once a few of them are clustered, they disappear and earn you points. It's a unique and cool idea, trapped on a system that is inaccessible to almost everyone.

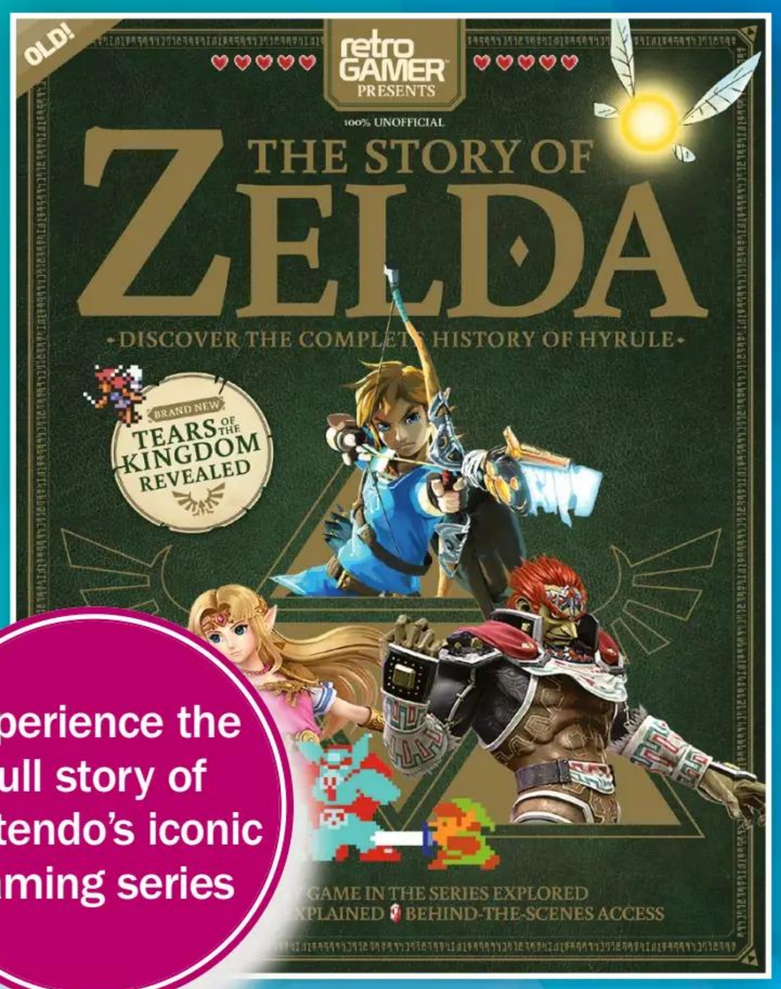


Gizmondo fact

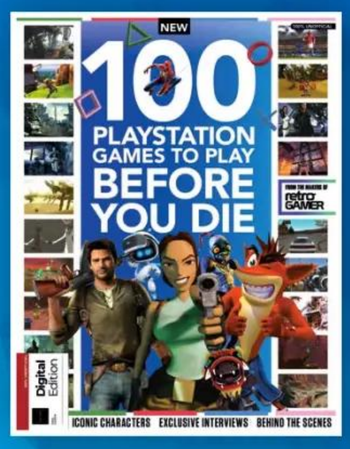
■ Almost 40 games were cancelled for Gizmondo, including *Halo: Combat Evolved*, *Rayman* and *MechAssault*. One we particularly liked the look of was *Conflict Vietnam*.

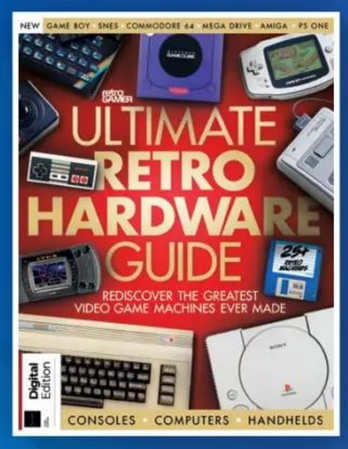
PROCESSORS: 32-BIT ARM9 (400MHZ) **RAM:** 128MB DDR RAM
GRAPHICS: NVIDIA GOFORCE 3D 4500 (1.2MB SRAM)
DISPLAY: 2.8 INCH TFT (320X240 RESOLUTION)
AUDIO: STEREO SOUND **MEDIA:** SD/MMC MEMORY CARDS
COMMUNICATIONS: BLUETOOTH, GPRS
OPERATING SYSTEM: WINDOWS CE
OTHER FEATURES: MPEG 4/MP3 MEDIA PLAYBACK, GPS TRACKING, SMS/MMS TEXT MESSAGING, WAP INTERNET, CAMERA

SYSTEM SUPPLIED BY **EVAN AMOS**



Experience the full story of Nintendo's iconic gaming series

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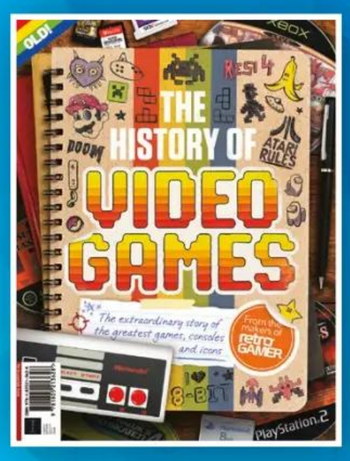
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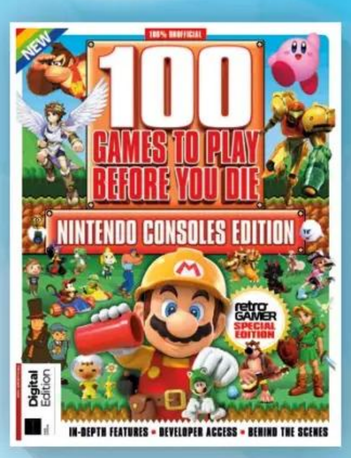
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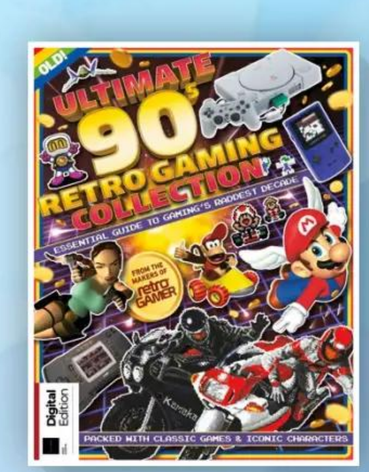
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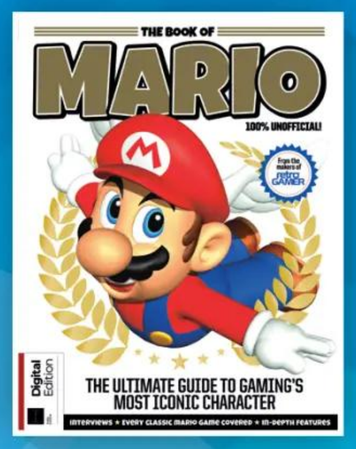

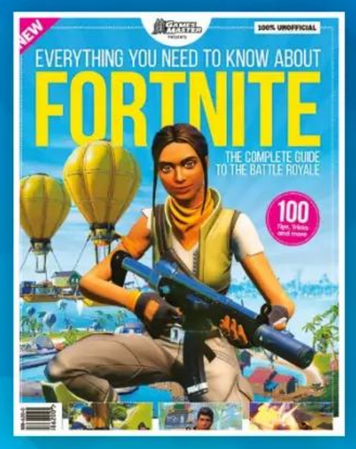

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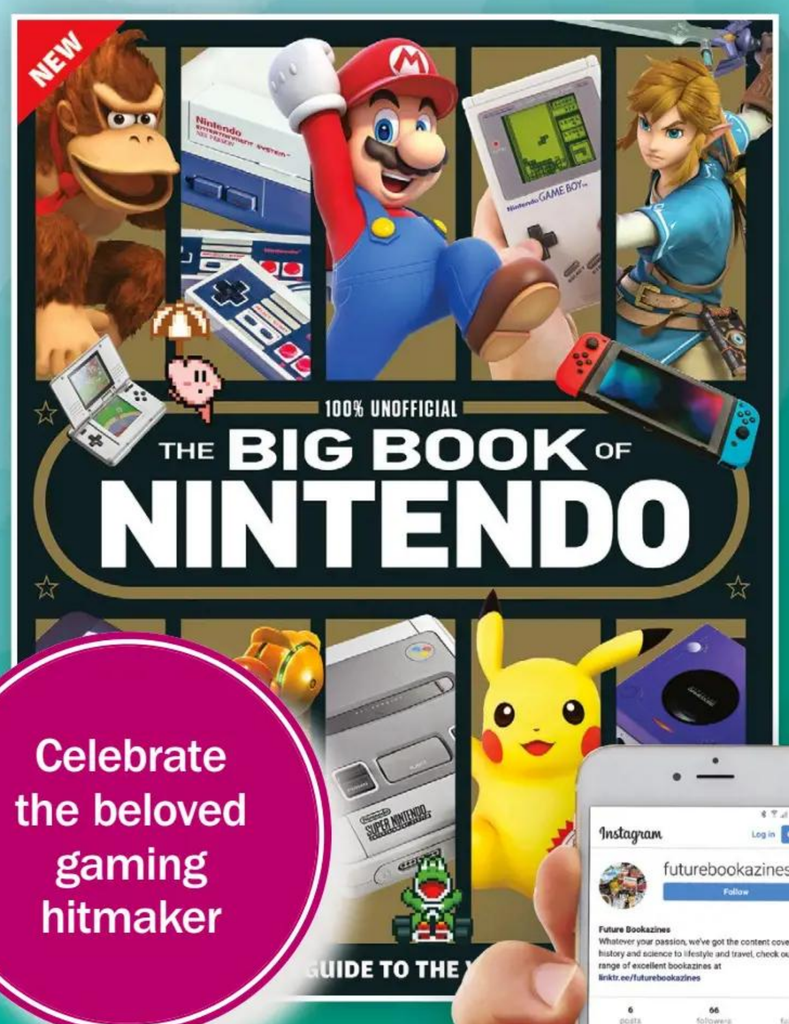

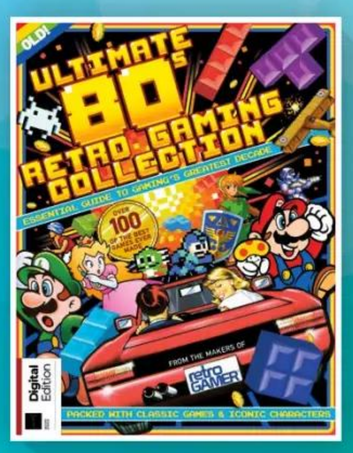

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A MICROVISION RETROSPECTIVE
Often billed as the first true handheld game console, the Microvision is an evolutionary step in handheld electronic games, those distant cousins to videogames. Marty Goldberg reveals the history behind this pioneering product
microvision
BLOCK BUSTER
[The chemicals'] speed determined how many lines you could have in the display

EARLY PIONEERS

Delve into handheld history and discover the forerunner consoles and machines, from the Microvision to the Game & Watch range

The Impact Of The GAME BOY
OVER THREE DECADES AFTER ITS LAUNCH, THE GAME BOY HAS BECOME MORE THAN A GAMING ICON – IT'S A TRUE CULTURAL PHENOMENON. WE LOOK BACK AT HOW NINTENDO'S MACHINE ACHIEVED SUCH A FEAT, AND SPEAK TO THOSE STILL FLYING THE FLAG FOR THE HANDHELD TODAY
Nintendo GAME BOY
BOY WONDERS

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Relive the glory days of Nintendo's Game Boy series and discover machines like the Atari Lynx and Sega Game Gear that tried to topple its supremacy

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